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AUTHOR Moore, Mary T.; And Others
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ABSTRACT

Initiated in response to a Congressional requirement in the 1983 amendments to the Education for All Handicapped Children Act, this report provides nationally representative estimates of the per-pupil expense of educating students with disabilities. The estimates are derived from information gathered through a 1985-86 school year survey in a sample of 60 school districts located in 18 states. Based on the Resource Cost Model, the survey gathered information about the resources, pricing, and pupil enrollments of all special and regular education programs and services provided to students in the sampled districts. Resources were broken down into personnel, supplies, materials, equipment, energy, and space associated with each program. Five categories of special education programs were studied: preschool, resource, self-contained, residential, and home/hospital. Supplemental service expenditures were also analyzed, including related services, adaptive physical education, and special vocational instruction. In addition, the study documents expenditures for district-level and school-level support services, including supervisory and administrative personnel, curriculum coordinators, community liaison staff, attendance officers, research and evaluation, etc. Five categories of service providers were examined: school districts, cooperatives, other state and local agencies, private schools, and purchased services. The 1985-86 data are compared with per-pupil expenditures obtained from an earlier study conducted in 1977-78. (JDD)

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PATTERNS IN SPECIAL EDUCATION SERVICE DELIVERY AND COST

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Patterns in Special Education Service Delivery and Cost

Mary T. Moore
E. William Strang
Myron Schwartz
Mark Braddock

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December 1988

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EXECUTIVE SUMMARY

Initiated in response to a Congressional requirement in the 1983 technical amendments to the Education of the Handicapped Act (EHA), this report provides recent, comprehensive, nationally representative estimates of the per-pupil expense of educating students with disabilities. The estimates are derived from information gathered through a survey conducted during the 1985-86 school year in a sample of 60 school districts located in 18 states.[1] This study represents the first nationwide examination of expenditures for special education after several years of experience implementing the provisions of the Education for All Handicapped Children Act (Part B of EHA). As such, it provides an opportunity to compare per-pupil expenditures after full implementation of the law with those obtained from an earlier study conducted in 1977-78 when state and local officials were first responding to the 1975 enactment.

General Approach

This study used an ingredients approach to determine the average per-pupil cost of educating pupils with handicapping conditions. Based on the Resource Cost Model (RCM) developed by Hartman (1979) and Chambers and Parrish (1981), the Expenditures Survey gathered detailed information about the resources, pricing, and pupil enrollments of all special and regular education programs and services provided to students in the districts sampled. Resources were broken down into personnel, supplies, materials, equipment, energy, and space associated with each program. These ingredients were subsequently recombined to generate total expenditures for each program in each district. Average per-pupil expenditures were obtained by dividing these total expenditures by the number of students receiving a program or service.

Five categories of special education programs covered the range of educational placements for youth with disabilities: preschool, resource, self-contained, residential, and home/hospital. Preschool programs included both school and home-based instructional programs for children aged birth through 5. Resource programs (defined as less than 15 hours per week) and self-contained programs (defined as more than 15 hours per week) served youth between the ages of 6 and 21. Residential and home/hospital programs served pupils aged 3 through 21. The study also examined expenditures for services that supplemented the special instruction students received in their primary placement programs. Termed supplemental services in this report, these include services that the federal EHA statute and regulations call related services as well as adaptive physical education services and special vocational instruction.

The Expenditures Survey encompassed special education programs and services provided directly by school districts as well as those provided by other agencies or entities external to the district. Cooperatives, other state and local agencies, private schools, and purchased service arrangements are represented in the cost estimates contained in this report. It was not possible, however, to obtain equally detailed

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[1]The sample of districts was selected with probability proportional to size. Steps were undertaken to ensure diversity with respect to region, racial/ethnic populations, special education funding approach, and wealth.

program and cost information for agencies other than districts or cooperatives. In place of information about components of costs, only tuition costs for individual pupils were collected from private providers and other state and local agencies serving students from districts in the sample.

In addition to expenditures for pupils' instructional programs and supplemental services, the study documents expenditures for district and school-level support services. Included in this category are supervisory and administrative personnel such as principals and program directors, curriculum coordinators, community liaisons, attendance officers, research and evaluation, and other functions that support the direct instruction and services provided to individual children. Expenditures for support services are computed for both the regular and the special education program.

Overall Per-Pupil Expenditures

All Students with Disabilities

The average total cost of educating a pupil identified as handicapped was $6,335 in the 1985-86 school year. Of this amount $3,649 came from special education with the remainder ($2,686) derived from regular education. This compares with an average total cost of $2,780 for a student who spent full time in the regular education program. Expressed as a cost ratio, the total cost of educating a handicapped pupil is 2.3 times the cost of educating a regular education pupil.[2]

These 1985-86 expenditures, when adjusted for inflation, reflect a 10 percent increase in the average total per-pupil cost of special education services since 1977-78. The average per-pupil expenditure for regular education, similarly adjusted, reflects an increase of only 4 percent.

These educational expenditures are based on the total enrollment in special education in the nation. Consistent with other reports of children identified as handicapped, the Expenditures Survey found approximately 11 percent of the student population from pre-K through grade 12 enrolled in special education programs. Similar to the annual data reported by the U.S. Department of Education to Congress, the Expenditures Survey data indicate that most of these students were identified as having learning disabilities (45 percent), followed by speech/language impairments (25 percent) and mental retardation (14 percent).

The vast majority of students enrolled in special education were served directly by school districts (83 percent). Cooperative agencies served 12 percent while the remaining 5 percent was distributed across private providers, other state and local agencies, and purchased service arrangements.

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[2]The relationship between the cost of education for special education students and that for regular education students often is expressed as excess cost. Definitions of excess cost vary, however, resulting in different amounts. The Expenditures Survey estimate of total excess cost, defined as the difference between the total cost of educating a pupil with disabilities and the total cost of a student in regular education, is $3,555.

Students in Self-Contained Programs

Total educational expenditures for a pupil incorporate the expense of both special and regular education. For students in self-contained programs, regular education costs have been adjusted to reflect the time that these pupils, on average, participate in regular education. The Expenditures Survey found that 85 percent of such pupils spent an average of 28 percent of their school week in regular education. The total average cost of educating a disabled child served in a self-contained program amounted to $6,913, or about 2.5 times the cost of educating a regular education pupil. Only $1,347 of this amount was due to the regular education received by these students.

Twenty-eight percent of all students in special education were enrolled in self-contained programs. The population enrolled in self-contained programs included students attending full day programs in special schools as well as students in neighborhood schools within the district. More than two-thirds of students classified as mentally retarded, seriously emotionally disturbed, multihandicapped, deaf, and autistic were served in self-contained programs.

Students in Resource Programs

Because students in resource programs attend regular education classes 80 percent of their time at school, the average total cost of educating such students includes the full average per-pupil cost of regular education. Because regular program costs are largely unaffected when students participate in resource programs, regular education expenditures for these students were not reduced due to their absence from the class for just over an hour a day, since the same regular class resource levels must be maintained for these students. The total cost of educating a pupil in resource programs was $5,243, about $1,700 less than educating students in self-contained classes and about 1.9 times the cost of educating a regular education pupil.

The large majority (68 percent) of pupils in special education received their instruction through resource programs. Almost 80 percent of learning disabled youth and over 90 percent of pupils with speech and language disorders were served through resource programs.

Students in Preschool Programs

For preschool students with disabilities, the average total expense of their education equalled $5,723, or 2.1 times the average cost of educating regular education pupils in pre-K through 12th grade. Because the Expenditures Survey examined practices in 1985-86, findings related to preschool services may not characterize more current school years. In recent years federal legislation has provided additional incentives for expanding services to this population of students.

Four percent of all children in special education were in preschool programs. Most of these children were aged 3 through 5; only 14 percent were under the age of 3.

Students in Residential Programs

The average total expenditure per pupil for students in residential programs was $29,497. All but $389 of this cost is attributable to the special school tuition for these students. Pupils in residential placements cost 10.6 times the expense of educating a non-disabled student in regular education.

Less than 1 percent of students nationwide attended residential programs, and just over a third of school districts reported students placed in these programs. Two-thirds of the students in residential programs were served by public state and local providers; the remaining third were served by private providers.

Special Education Cost Comparisons

Components of Special Education Expenditures

The special education portion of students' educational expense, on average, amounted to $3,649 per pupil. The largest share of this expense (62 percent) purchased specific instructional programs. Thirteen percent went toward the costs of the assessment program;[3] 11 percent was attributable to the cost of support services at the district and school level, and 10 percent paid for related services. The remaining 4 percent purchased special transportation services, which 30 percent of pupils in special education received.

The average expenditure per pupil in the regular education program, $2,780, can be broken down into similar components. Compared to special education expenditures, less of the regular education dollar was allocated to instruction (54 percent) while considerably more was spent for support services (35 percent). A larger share of the regular education cost was consumed by transportation (8 percent). Pupil services for non-disabled students (guidance and counseling, health, and social work) comprised 3 percent of dollars spent for regular education.

Expenditures for Specific Instructional Programs

The 63 percent of special education expenditures spent for instructional programs contains great variation. When types of programs were examined by the disability of the students served, instructional program per-pupil costs ranged from $647 for resource programs for students with speech or language impairments to $20,416 for self-contained programs for deaf-blind children. The average per-pupil cost of resource programs for youth with learning disabilities was about half the cost of self-contained programs for this population ($1,643 compared to $3,083).

In general, the variation in expenditures for specific types of instructional programs paralleled the intensity of the special instructional services provided. The more intense the program, the higher was its per-pupil expenditure. Students in self-contained classes spent more time receiving special education and they were in classes

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[3]The assessment program encompasses services related to a pupil's referral, screening, evaluation, IEP development, and re-evaluation.

with an average pupil/teacher ratio of 9 to 1. When specific self-contained programs were examined, these ratios ranged from a national average of 4 students per teacher for students who were hard of hearing to 13 for pupils with learning disabilities. Resource program students spent much less time in special education and the caseloads of the teachers or professionals were higher than the pupil/teacher ratios of self-contained programs. The average caseload across all resource programs was 26 students per full-time professional. For specific resource programs, caseloads ranged from 10 for mentally retarded students to 50 for students with speech/language impairments.

Expenditures for Supplemental Services

The average per-pupil cost of the more common supplemental services extended from $298 for special school health services to $1,583 for special transportation. The caseloads for specific services were a major factor determining the level of expenditures. Average caseloads for supplemental services generally were much larger than those characteristic of resource programs, ranging from 37 for occupational therapy to 64 for guidance and counseling. Expenditures were also influenced by the mix of professionals and aides used for each service (for example, physical therapy services used professionals as well as aides while speech/language pathology was more reliant on just professionals). Costs for special transportation were relatively high because a small percentage of special education students were provided these services and the costs of drivers, attendants, and specially equipped buses were large.

Expenditure Variations by Provider

Average per-pupil expenditures for specific instructional programs and supplemental services varied by the agency serving as the direct provider. Although programs and services provided by private and other state and local agencies generally entailed higher expense, providers external to the school district (for example, cooperatives and purchased service arrangements) were not uniformly more expensive. The costs associated with different providers were affected by at least two major occurrences. First, children with more severe impairments were often served by external providers, thus acting to increase expenditures. Second, external providers such as cooperatives are used to achieve economies of scale when districts have low prevalence populations. This phenomenon tends to mitigate the higher expenditures often associated with such populations.

A few illustrations demonstrate the lack of uniform effects different types of providers have on per-pupil expenditures. Self-contained programs for mentally retarded students provided directly by districts cost an average of $3,993 per pupil while such programs cost $5,703, on average, in cooperatives. But self-contained programs for the learning disabled cost almost the same in districts and in cooperatives, $3,101 and $2,985 respectively. Occupational therapy services provided by cooperatives were less expensive than those provided by districts ($772 compared to $990).

Expenditures of Federal EHA-B Funds

Federal EHA-B funds comprised 91 percent of all federal funds spent at the local level for special education programs and services. These funds primarily were used to pay for instructional programs and supplemental services (79 percent) and to purchase support services (21 percent). Local providers were somewhat more likely to use federal funds for support services than other funding sources, perhaps because of federal requirements related to the principles of excess cost, non-supplanting, and non-commingling and because of traditional concerns about the stability of federal dollars relative to those from other sources.

Overall, federal EHA-B funds accounted for 6 percent of total expenditures for special education at the local level. This overall figure breaks down into federal funds comprising 5 percent of total expenditures for instructional programs and supplemental services and 17 percent of expenditures for support services.

Variations In Expenditures Across Districts

The national average per-pupil expenditures for special education students were computed from district level expenditures that vary considerably. For example, the total per-pupil cost of special education in the highest spending district was 5 times the total per-pupil cost in the lowest spending district. The cost of regular education per pupil in the highest spending district was 4 times the amount spent in the lowest spending district. Expenditures are influenced by variations in salaries, local prices for materials and supplies, and policies across districts.

Initial analyses of the Expenditures Survey data, however, reveal few systematic explanations for variations in expenditures and the design of programs that are related to districts' size of enrollments, metropolitan status, and wealth (as measured by median family income). Although differences are evident across different types of districts, small sample sizes generally limit the statistical significance of these differences. Regression analyses suggest, however, that higher expenditures are more likely to occur in urban, central city districts than in suburban or rural locations.

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INTRODUCTION

BACKGROUND

The 1983 Amendments to the Education of the Handicapped Act (EHA) required a national study of educational expenditures for handicapped students receiving special education and related services.[1] Congress' intent was to develop national, recent, and comprehensive estimates of educational expenditures for handicapped pupils that would be useful to federal, state, and local administrators in assessing their agencies' response to the mandates contained in P.L. 94-142, the Education for All Handicapped Children Act.

This volume reports the initial results of a study commissioned by the Office of Special Education Programs (OSEP) in the U.S. Department of Education (ED) in response to Congress' request. It addresses three major topics of interest to practitioners and policymakers at all levels of the educational system:

(1) What is the average per pupil expenditure for special education and related services for handicapped students;

(2) What special instructional programs and specific related services are delivered by districts to handicapped pupils; and

(3) What percentage of the expense of educating children with handicaps is supported by federal Education of the Handicapped Act, Part B (EHA-B) funds?

The information in this report is based on a survey of special education expenditures that collected data from 60 school districts located in 18 states during the 1985-86 school year. These districts were selected through a stratified random sampling design constructed to produce national estimates of per pupil expenditures and configurations of services for both special and regular education students. States and

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[1]The Congressional mandate required compilation of "current information available through state education agencies and local education agencies and other service providers, regarding state and local expenditures for educational services for handicapped students (including special education and related services) and gather(ing) information needed in order to calculate a range of per pupil expenditures by handicapping condition."

districts were chosen with probability proportional to enrollment. The sampling design also ensured variability across region, state funding formula, income level, and racial composition of the student body. Appendix A contains a detailed discussion of the design and selection of the sample used in the Expenditures Survey.

This undertaking represents the first large-scale survey of expenditures for special education students to reflect the full impact of EHA-B and related state statutes on the level of expenditures for special education and related services. The last major study (Kakalik et al., 1981) gathered information in school year 1977-78, only a short time after initial implementation of EHA-B. While some states had passed similar legislation prior to the 1975 federal law, most states had to adjust their requirements to conform to the provisions related to least restrictive placement, due process, and individualized education plans contained in EHA-B. As a consequence, many state and local education agencies had only achieved partial implementation of these provisions by the time of the first national survey of expenditures for special education.

GENERAL APPROACH

A major step in responding to Congress' request for estimates of expenditures was to decide upon an appropriate approach. Important technical distinctions, for example, separate studies based on the concept of expenditures and those based on the concept of cost. Expenditures, narrowly defined, represent the dollars agencies such as school districts actually pay for special education within a given year. So defined, they are likely to vary each year depending on the time at which certain expenditures are made. For example, textbooks may be purchased in a specific year and not be purchased again for several years. Moreover, payment for a particular service may not appear as a "special education" expenditure in the budget, either because another agency such as community mental health provides the service or because volunteers have performed the service. Past efforts that identified expenditures for special education within a sample

service. Past efforts that identified expenditures for special education within a sample of school districts were limited in their utility and generalizability as a result of this reliance on administrative budgets as the basis for identifying expenditures for handicapped pupils.

The concept of cost encompasses a broader perspective than expenditures. It includes both the monetary transactions entailed in supporting specific programs as well as those requirements that are not directly contained in the monetary price paid by school districts. The concept of cost allows dividing expenditures across years to reflect their useful life and moving beyond budget categories to identify charitable contributions along with expenditures from other sources beyond the agency under study. At its broadest level, the concept of costs can entail the cost of opportunities foregone as the result of pursuing a particular service or program.

Because studies of expenditures based on district budgets have resulted in information of limited value beyond the districts studied, the Expenditures Survey emphasized a cost approach that sought to overcome many of these deficiencies and yet produce estimates with practical application. This study is the first national level application of a technique to estimate costs that uses districts' instructional and support programs as the focal point for identifying expenditures. This approach, known as the Resource Cost Model (RCM), was originally developed by Hartman (1979) and Chambers and Parrish (1983) and was adapted for use in this study. Colloquially termed an ingredients approach, it involves identifying the expense of programs that school districts use to deliver special education and related services by breaking these programs into their cost-related components (numbers of students, staff, equipment, transportation, and space) and attaching prices to each component.[2]

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[2]Henceforth, we dispense with the technical distinctions between the terms "cost" and "expenditure," and use the two synonymously.

Because of the central role played by programs in this study, it is useful at the outset to clarify what we mean when discussing them. Special education programs can refer to the individualized education program (IEP) that specifies for each child with handicaps, the special instructional help he or she will receive. However, it is more useful in studying special education services to group programs into categories reflective of major arrangements used to educate children with handicaps. For example, some special instruction is limited to but a fraction of the total time a student spends in regular education classes and is known as a resource program. When a greater amount of special teaching is required for a student to learn, special classes are used to provide the majority of a child's total instruction. Such classes are referred to as self-contained programs. Other programs include those that educate a child in a residential living arrangement or those that focus on a particular age group such as preschool children.

The adapted RCM approach used in this study called for teams of researchers to collect data on all the special education and related service programs within each district. Thus, these researchers documented the various self-contained classroom programs as well as the various resource, residential, and specific services such as assessment and transportation that the district offered. Each time districts altered the mix of resources to provide instruction (for example, a teacher plus an aide instead of just a teacher, or a higher pupil/teacher ratio), the cost differences were captured by identifying each arrangement as a discrete special education program in that district. The RCM approach also identified the resources and related expenditures for the full array of administrative and support functions within each district, including administration for schools, special programs, and the district as a whole.

Using actual programs as the basis for estimating and reporting special education costs is advantageous because these programs are readily understandable by school and

district officials who plan and budget for staff, equipment, and space as these relate to particular program offerings. These officials usually want to know how modifications in various programs, for example, more pupils per teacher, will influence budgets for the district. An emphasis on programs also allows fulfillment of a second objective guiding this study, a description of the range of programs and services used by school districts to serve children with handicaps and documentation of the relevant dimensions of these programs and services. This information assists school officials and both federal and state policymakers in assessing the breadth and nature of current arrangements designed to deliver special educational and related services.

Previous efforts to identify the costs of special education have relied on a variety of approaches. The more prominent have included analyzing school district budgets to identify special education expenditures (Rossmiller et al., 1970), extrapolating costs based on exemplary programs (Taylor, 1973), and a Rand Corporation study that focused on identifying all of the resources used to educate children with handicaps and their associated costs (Kakalik et al., 1981). The emphasis on special education programs as opposed to handicapping conditions of students distinguishes this study from past efforts. Nevertheless, many of the results can be reported in terms comparable to previous studies, for example, as average per-pupil expenditures or cost ratios. When relevant, we align these findings with those reported in these previous studies.

The reporting of results in this study departs from previous studies in one important way. Consistent with the focus on instructional programs and services, we provide cost estimates for different handicapping conditions by the type of programs in which children receive instruction or the agencies that provide the programs (for example, school districts or cooperative agencies serving a range of school districts). Although most previous studies have included aggregate estimates of cost for each handicapping condition, these have not proven very meaningful and are somewhat

misleading. Within the same handicapping condition a sufficiently wide range of degrees of impairment exist that require different instructional arrangements. As a result, expenditures vary as much within each handicapping condition as they do across (Kakalik et al., 1981).

SCOPE AND LIMITATIONS OF THE EXPENDITURES SURVEY

The Expenditures Survey was designed to collect highly detailed information about school districts' arrangements for serving pupils with handicaps. Site visitors spent an average of seven days at each district gathering information from a wide range of staff and administrators. Within each district one employee served as a coordinator for the study to maintain liaison with the research staff and coordinate their retrieval of information.

Researchers collected information about programs that spanned the age groups (from birth through 21) served by each district during the 1985-86 school year. Thus, survey data include information on infant/preschool programs through high school special education/vocational programs.[3] Moreover, data were collected on all special education programs and services delivered to children enrolled in the district, whether they were provided directly by the district, purchased by the district, or delivered by another agency external to the district such as a cooperative or intermediate

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[3]This survey reflects those infant and preschool programs that were offered by districts prior to the 1986 amendments to the Education of the Handicapped Act contained in P.L. 99-457. The Part H grants encourage the expansion of services to the population aged birth through 2 and amendments to the Part B program encourage expansion of the population of children aged 3 through 5. In response to these changes in federal funding, several districts may have expanded their special education program offerings on behalf of infants and preschoolers since the collection of information for the Expenditures Survey.

educational unit, private school, or state-operated school.[4] However, in the case of private and other state and local agencies (for example, state-operated special schools) only tuition costs for students from the districts attending these schools were obtained. Consequently, unlike information for districts and cooperatives, information about the resources contributing to cost and the characteristics of instructional programs is unavailable for these agencies.

Both special and regular instructional program information were gathered to allow for comparisons as well as to permit estimates of total educational expenditures for pupils with different impairments. Regular education information included the resources and prices for the basic academic portion of the program, any supplemental instruction such as music or art, pupil services such as guidance and counseling, health, and transportation. In addition, information regarding support services (a category that includes administration) for both special and regular education was collected in each district. This information was gathered for both the school and district level.

The survey also gathered information on the enrollment of special education children by handicapping category, although the study did not obtain data about individual students. Whenever possible, the survey minimized variations across districts due to inconsistent policies across states regarding the use of handicapping categories to identify special education students. For example, some states do not categorize children by the specific categories of handicapping conditions contained in EHA-B, distinguishing them only as handicapped children. Some states apply alternative labels such as "educationally handicapped," or combine categories such as hard of hearing and

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[4]The Expenditures Survey only comprises programs in which districts are involved in the placement of students for special education and related services at public expense. The survey did not encompass situations in which parents sent their children to special education programs without the district's involvement (for example, parents may independently choose to enroll their children in private schools or university affiliated programs for handicapped preschoolers).

deaf. The data collection process translated these alternative or combined categories into the most similar of the 11 federal categories of handicapping condition that appear in Appendix D.[5] If the handicapping conditions could not be respecified, the students were classified as "students not categorized."

Similarly, the survey includes information on programs that serve particular categories of handicapped children as well as those that are not designed for a particular category. These non-categorical programs typically serve a combination of categories (also known as cross-categorical programs) or serve children who are not categorized into any finer classification. In cases where districts stated that they provided a non-categorical program but in fact that program served one type of condition, we classified the program by the condition served. Other non-categorical or cross-categorical programs remained classified as non-categorical programs.

Another potential source of non-comparability of information across districts results from the different terminology applied to special education for children with speech and language impairments. Some districts classify all such services as related services, others offer only speech/language pathology programs and some provide speech/language pathology as both a special program and a related service. In some cases, the same personnel and instructional designs are used for these arrangements. The Expenditures Survey standardized this information across districts by viewing related services as supplemental to the primary special education programs in which students were served. Therefore, regardless of districts' conventions for categorizing speech/language pathology services, we categorized speech/language pathology as a special educational program when students' sole disability was in speech. Speech/language pathology was designated a related service when students participated

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[5]Autistically impaired students constituted a separate category for purposes of this study. The federal definitions of handicapping conditions include autistic children under the category of "other health impaired."

in any other special education program (for example, a resource program for learning disabilities).

Finally readers should be aware that the Expenditures Survey only sought information pertaining to cost, enrollment, and service configurations across districts' special education programs. The study made no distinctions regarding the quality of the programs offered. Therefore, this report presents no information about the cost characteristics of programs with varying degrees of quality. Similarly, the survey does not contain any direct measure of the severity of the impairments addressed by different programs and services, although such inferences can be made in situations involving low incidence populations and low pupil to teacher ratios.

ORGANIZATION OF THE REPORT

This report summarizes basic information on special education expenditures gathered through the survey undertaken in 1985-86. The first of the five chapters presents an overview of special education programs and services and enrollment patterns across them. Chapter 2 summarizes information about variations in the delivery of types of special education programs and services. Chapter 3 contains our estimates of expenditures for special education while Chapter 4 describes how special education costs relate to regular education costs. A fifth chapter addresses a policy issue of considerable importance: the role played by federal EHA-B funds in helping to pay for the costs of special education.[6]

The report excludes one item of information relevant to a total accounting of special education expenditures. Regular and special education summer school programs are not included in the results presented in this volume. Summer school programs for

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[6]Although other federal funds are used by districts for special education, this report focuses on EHA-B funds because of their size relative to these other funds and their specific purpose to assist states and districts in the provision of special education and related services for all handicapped students.

special education, although offered by several districts, enroll a small percentage of handicapped pupils (about 7 percent). The small numbers of pupils participating in such programs are unlikely to alter the results reported in a significant way, but it is important to note the omission of these costs from the estimates cited. Subsequent reports analyzing special topics included in the survey may address the issue of summer school programs for special education students as well as a range of other topics such as patterns across state and local expenditures for special education that could not be explored in this report.

DIMENSIONS AND TERMINOLOGY FOR REPORTING SURVEY RESULTS

Throughout this report a number of basic terms and dimensions are critical to understanding the results. Four major dimensions are used to report findings: programs; providers; handicapping conditions; and resource components. To facilitate readers' work, it is useful to review these major organizing schemes and the terminology employed. A summary of the definitions of terms used in this report is included at the end of this introduction so that readers can refer to them throughout the remaining chapters.

Types of Programs and Services

One major dimension for presenting results is according to types of special education programs and services. This dimension divides all special education programs and services into three categories: (1) primary instructional programs; (2) supplemental services; and (3) support services.

Primary instructional programs constitute the basic placement assignments for students in special education. Five such assignments define this study: preschool; self-contained programs; resource programs; residential programs; and home/hospital programs. All students receiving special education in the districts surveyed were

served in one (and only one) of these assignments at the time of the study. Hence, these program types constitute primary instructional placements.

In addition, some students enrolled in special education receive *supplemental services*. This term comprises all related services that students need to benefit from special instruction as well as those programs or services not officially labeled related services by the federal EHA statute but which are in addition to instruction in the primary programs described in the previous paragraph. Special vocational programs as well as adaptive physical education constitute the non-related service programs included in this category. Counts of students receiving different supplemental services are not mutually exclusive.

The Expenditures Survey collected information on a large number of related services provided to students with disabilities. Over 30 distinct types of related services were identified across the districts surveyed. This report discusses related services as an entire group or as individual related services for those most common across districts. The specific related services for which findings are presented are occupational therapy, physical therapy, speech/language pathology, psychological counseling, school health, social work, transportation, assessment, and guidance and counseling.

Support services encompass the range of activities related to special education at the district level and within special schools for students with disabilities. These activities include administration, inservice training, curriculum coordination, child find, and community liaison.

Providers

A second major dimension for describing programs and services is according to the entity that actually provides them. An important question related to costs involves whether the cost of a program or service varies by provider. Five types of providers

are discussed: the school district; cooperatives; private schools; purchased service providers; and other state and local agencies.

School districts are the local governmental agencies responsible for providing a public education to all children and youth residing in a defined geographic area. When they directly provide special education services to pupils residing in the district's attendance area, they are classified as direct service providers.

Cooperatives (or intermediate units) are mandatory or voluntary arrangements that provide students from different districts with one or more of their special education services. Financial arrangements between the participating districts and the cooperative vary depending on state and local policies.

Private schools, both day and residential, may be located in the same community as the school district or somewhere else in or out of the state. *Purchased service providers* refer to arrangements made by districts or other agencies to obtain a specific program or service from an individual or entity such as a university or a hospital. Psychotherapy, for example, is often purchased by districts from psychotherapists or psychiatrists with private or clinical practices near the school district.

Other state and local agencies that provide special education services to students include state-supported special schools (both day and residential), public health services such as Crippled Children's Services, vocational rehabilitation agencies, and charitable or community-based organizations such as the Easter Seal Society. Districts external to the district studied in the Expenditures Survey which provide special education to some of the students in the sampled district are categorized as other external agencies or other state and local agencies.

Handicapping Conditions

In several instances results are described by the handicapping conditions of the children served. Self-contained and resource program expenditures, for example, can

be further specified by the handicapping condition of the children served, including those programs that are non-categorical. Twelve categories of handicap are used for reporting this information--the 11 federally specified conditions as well as autistically impaired children.

Resource Components

The fourth dimension for presenting information from the Expenditures Survey is according to the resource components used in various programs and services. Basically all programs employ some mix of staff (teachers, aides, other professionals and practitioners such as therapists, psychologists, and nurses) and non-personnel items such as supplies, materials, space, and equipment. Estimates of expenditures are distributed across these components in subsequent chapters in this report.

A NOTE ON SAMPLE ESTIMATES AND STANDARD ERRORS

Two types of estimates can be computed from the information collected from the 60 school districts and are presented in this report. One estimate generalizes results to the universe of students in the nation--either all students or those students with handicapping conditions. These estimates allow the reporting of findings such as the percentage of special education students in the nation enrolled in self-contained classes or the average per-pupil cost of a resource program.

A second estimate generalizes results to the universe of school districts in the nation. These estimates are particularly appropriate to questions about school district practices and permit reporting results such as the average percentage of districts reporting handicapped students enrolled in residential programs.

Sampling weights have been developed to generate each type of estimate from the survey data.[7] Care has been taken throughout the report to make explicit the universe to which each result applies.

Both estimates--those that generalize to the national population of handicapped students and those that generalize to districts nationwide--are subject to the imprecision introduced by a low number of observations and large variability among some observations. For this reason, certain results may appear noteworthy but may be too imprecise to be confident of their accuracy. This is particularly true of estimates related to programs serving low incidence student populations which would have required a much larger sample size than was feasible in the survey. The imprecision of any given estimate, for example, the cost per student for a self-contained program for mentally retarded pupils, is expressed statistically as the estimate's standard error. The larger the standard error relative to the estimated value, the greater the imprecision of that estimate. We have attempted to take large standard errors into account in selecting patterns and results to highlight in the text. Additionally, as a general practice, we do not present estimated values in the text that are based on programs in fewer than five districts. However, to allow readers to judge the precision of an estimate, standard errors are included for all statistics regardless of the number of observations in the supporting tables contained in Appendix C.

Finally, we include interquartile ranges for major results contained in the report to provide an additional measure of the diversity across districts. The interquartile range extends from the values at the first and third quartiles and represents the amount of variation around the median (that is, the value which half the districts were above and the other half were below). The first quartile equates with the 25th

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[7]A detailed discussion of the sampling procedure and weights applied to the survey data appears in Appendix A.

percentile and the third quartile equates with the 75th percentile. Interquartile values allow readers to assess, for example, the amount of variation in districts' expenditures per pupil or average caseloads in resource programs.

DEFINITIONS OF TERMS
EXPENDITURES SURVEY

Special Education Instructional Programs

These programs comprise the primary instructional placements in which students with disabilities receive most of their special education. These instructional programs are divided into five categories across which students can only be specified in one:

Preschool: All programs serving students between the ages of birth through 5, including at home and school-based programs. Includes preschool programs that serve students a few hours each week as well as those that serve students full time each day.

Self-contained programs: These programs serve students from age 6 through 21 for 15 or more hours per week. In the Expenditures Survey these programs include those provided in regular schools as well as those provided in special day schools.

Resource programs: These programs serve students age 6 through 21 for less than 15 hours per week. They include special instruction provided in the regular classroom as well as instruction provided in resource rooms.

Residential programs: These programs encompass services for students age 3 through 21 who are placed in any residential school or institution whether public or privately operated.

Home/Hospital programs: These programs provide special instruction to students unable to attend school because of their disabilities or related conditions.

Supplemental Services

This term comprises special education instructional programs beyond the primary programs described above as well as related services that students receive to benefit from special education. Unlike the category of special instructional programs, students can receive more than one supplemental service. The category of supplemental services includes special vocational programs, assessment, transportation, adaptive physical education, and a range of related services such as occupational therapy, physical therapy, speech/language pathology, psychological services, school health, social work, and guidance and counseling.

Assessment

Assessment refers to all activities related to screening, evaluating, placing, and re-evaluating students for or in special education. Thus, staff and resources that are employed in response to referrals, evaluation, preparation of IEPs, and re-evaluation of students already receiving special education are encompassed in this term. Students receiving assessment services include those not identified as handicapped as well as those already placed in special education.

Special Education Support Services

These services include those performed at the level of the district or special schools in the district to assist or administer the delivery of special education programs in schools or other agencies. They encompass administrative

functions (e.g., the district director of special education, coordinator of Child Find or parent coordination efforts, a special school principal, and secretarial support staff), instructional support staff (e.g., district level special teaching consultants, in-service training specialists, special substitute teachers), and other support (e.g., any supplies, space, energy, maintenance, equipment, and construction) associated with these functions.

Regular Education Instructional Programs

Regular education instructional programs include academic as well as supplemental instructional programs such as band, art, and physical education for students from pre-school through high school. Regular education does not include special compensatory, gifted, or bilingual programs.

Regular Education Pupil Services

These services include guidance and counseling, social work, psychological services, media services, audiology, and other pupil services provided to students in the regular education program.

Regular Education Support Services

This category includes all functions associated with school and district administration and assistance to instruction and pupil services in the schools. Principals, superintendents, district and school classified staff, librarians, testing and evaluation, media centers, attendance officers, substitute teachers, curriculum departments, maintenance staff, utility costs, supplies and materials, and space not associated with specific regular programs are encompassed in this category. Costs in this category can be separated into school and district level costs.

Non-categorical Special Education Programs

Special education instructional programs are designated as non-categorical when they serve students with different disabilities and the disability label is not a factor in the type of special help the student requires. Students who are enrolled in such programs may or may not be identified by disability categories. Students who are not identified as having specific disabilities are referred to as "non-categorized students."

Other State or Local Agencies

These agencies include state-supported special schools (both day and residential), vocational rehabilitation agencies, organizations such as Crippled Children's Services or the Easter Seal Society, and other school districts that make arrangements with a sending school district to provide specific special education programs to pupils. Other state or local agencies are also referred to as other external agencies.

Cooperatives

These providers, also called intermediate education agencies, are mandatory or voluntary arrangements that serve students from a consortium of districts. Typically these agencies have their own administrative structure but financial arrangements between the cooperative and participating school districts vary depending on state and local policy.

Purchased Services

Purchased services refer to arrangements made by districts or other agencies to obtain a specific program or service from a single individual such as a psychiatrist, or from a university, hospital center, clinic or other vendor. Transportation services often are delivered as purchased services.

Special Transportation

Special transportation is used only by pupils with disabilities who cannot attend school or special programs by using the transportation regularly provided to all students in the district. Special transportation frequently involves modifications to buses and to schedules, as well as the inclusion of attendants or aides in addition to the bus driver. Pupils with disabilities who ride the same buses as regular pupils receive regular, not special, transportation services.

Teachers

The category of teachers includes both special and regular education classroom teachers, specialists, and resource teachers.

Aides

Aides include both instructional and non-instructional aides (e.g. transportation aides).

Other Professionals/Practitioners

Staff in this category include therapists, pathologists, school psychologists, clinical psychologists, social workers, librarians, nurses, welfare and attendance officers, and guidance counselors.

Other Personnel

Included in this designation are school and district staff such as secretaries, custodians, bus drivers, security personnel, maintenance workers, and clerical staff.

Non-Personnel

This resource category encompasses all equipment, space, supplies, materials, textbooks, energy, and construction related to programs and services.

CHAPTER 1

SPECIAL EDUCATION PROGRAMS, SERVICES, AND ENROLLMENTS

Approximately 11 percent of the student population in the nation receives special education and related services.[8] The specific programs and related services that these students receive determine how much districts spend to provide special education for children with handicapping conditions. Programs and services are districts' organizational mechanisms for arranging resources for groups of children who require similar instruction. The mix of resources (for example, staff, equipment, textbooks, and physical space) involved in each type of program or supplemental service, multiplied by the number of units of each program or service necessary to serve student enrollments, is the basic formula for calculating special educational costs.

The patterns of programs and services provided to children with disabilities have significance independent of their relationship to expenditures. They represent school districts' responses to the legal requirement to provide handicapped youth with an education tailored to their unique needs. As such, they indicate the scope and variety of arrangements in place to meet the intent of federal and state statutes to ensure that handicapped students are provided a free appropriate public education.

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[8]This estimate is based on information collected by the Special Education Expenditures Survey for school year 1985-86 and includes the total number of handicapped students aged birth through 21 served by each district and total number of pupils enrolled in each district from pre-K through grade 12. It coincides with the U.S. Department of Education's reported 11 percent for the same school year based on similarly defined groups of children (ED, 1987).

TYPES OF PROGRAMS AND SERVICES

Primary Instructional Placements

Because EHA-B embodies a goal of adapting instruction to the needs of the individual child, a large degree of variation characterizes special education programs and services. Reducing this variation to meaningful categories can be a major challenge, especially when each state defines differently the placement categories for special education. The approach used in this study was to establish an acceptable list of major types of special education programs and services for youth aged birth through 21 with the assistance of a panel of special educators. This list identifies five types of primary instructional programs through which students receive the core of their special instruction:

(1) "preschool" for students birth through 5 years of age

(2) "self-contained programs" in which students aged 5 through 21 spend about half or more of their school day (and include those programs provided in regular schools as well as special day schools)

(3) "resource programs" for students aged 5 through 21, which consume less than a half of the school day (and can take place in the regular classroom or a special resource room)

(4) "residential programs" which entail a child living and receiving educational services at a special school or institution

(5) "home/hospital programs" for students unable to attend school because of their disabilities.

These five types of special education programs incorporate several elements--location, student age group, and the proportion of time spent in special as opposed to regular instruction. Although the elements are combined differently to produce each program category, the result is a commonly understood typology that encompasses the range of instructional arrangements used to educate students with disabilities. Although the five program types are not identical to the placement categories used by federal program administrators to report annual information to Congress about the

assignment of handicapped students to least restrictive learning environments, they are compatible with these categories.[9]

Supplemental Services

A number of special services are provided to children with handicapping conditions in addition to those obtained through the primary instructional placement. These services add to or assist a handicapped child in benefitting from the special education provided in the primary instructional placement. They include a wide array of group as well as individually-oriented services, most of which fall within the federal category of related services--services such as occupational therapy, physical therapy, speech/language pathology, braillists, interpretive services, psychological and psychiatric counseling, social work, assessment, special transportation, guidance and counseling, and school health. Beyond these related services, the supplemental services referred to in this report also include adaptive physical education and special vocational programs for handicapped youth. These vocational services include special work study programs, vocational classes for handicapped students, and rehabilitation counseling.[10] Supplemental services differ from the primary programs of special instruction previously described because they are in addition to these programs; children receiving

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[9]The Office of Special Education Programs placement categories are regular class, resource room, separate class, separate school facility, residential facility, and homebound/hospital environment. This study's category of resource program encompasses OSEP's placement categories of regular class and resource room. The category of self-contained program includes OSEP's categories of separate class, resource rooms that exceed half of a student's day, and separate school facility. OSEP's categories are designed to report patterns of placement in the least restrictive environment (LRE) whereas the categories used in this study attempt to reflect features of programs that represent major cost categories for district officials.

[10]This study does not distinguish between the funding source for vocational programs serving handicapped youth. The supplemental services referred to may be funded by a school district's vocational program but are specifically adapted to meet the needs of students with disabilities, or may be offered as part of the special education program of the district.

supplemental services are always assigned to one of the primary special education programs previously described but can be enrolled in more than one supplemental service.

We follow two conventions in reporting findings pertaining to supplemental services. The first lists five supplemental services which are distinctively different and relatively prominent at the local level: (1) special vocational programs; (2) assessment; (3) special transportation; (4) adaptive physical education; and (5) all related services other than assessment and special transportation. Additionally, we report findings for a list of specific related services beyond assessment and special transportation that are frequently needed by students with disabilities. These include occupational therapy, physical therapy, speech/language pathology, psychological services, school health, social work, and special guidance and counseling.

It is important to keep in mind that assessment services as defined in this report extend beyond testing students for purposes of establishing eligibility for special education. Rather, the term "assessment" includes the entire process from referral of a child for special education consideration through evaluation, IEP preparation, to re-evaluation of the student, which according to federal statute must occur at least every three years. Assessment programs serve special as well as regular education students since not all students referred are ultimately placed in special education.

The Prevalence of Programs and Services Across Districts

The frequency with which different types of programs and supplemental services are found in districts varies. Virtually all districts report students receiving self-

contained programs, resource programs,[11] some related services, and assessment (Figure 1.1). Many districts operate more than one version of a major program; for example, they may have a self-contained program designed for m[illegible]tarded students that differs from the self-contained program provided to emotion[illegible]isturbed students.

Greater variation surrounds the presence of other types of special instructional programs across districts. Seventy percent of districts report students attending special education preschool programs. However, districts are much less likely to have students in residential or home/hospital programs. Estimates derived from the survey indicate that about 34 percent of all districts have one or more students in a residential program and 37 percent report students in a home/hospital program.

Virtually all districts report student receipt of some form of related service as well as assessment and special transportation. When specific related services are examined, however, we find that with two exceptions, only around half of all districts report the provision of each type of related service. The two exceptions are speech/language pathology and psychological services. Ninety percent of all districts report speech/language pathology as related services, while at the other extreme, 42 percent of districts report psychological services for pupils with disabilities. The remaining types of related services (occupational therapy, physical therapy, and the like) are present in between 44 and 66 percent of all districts.

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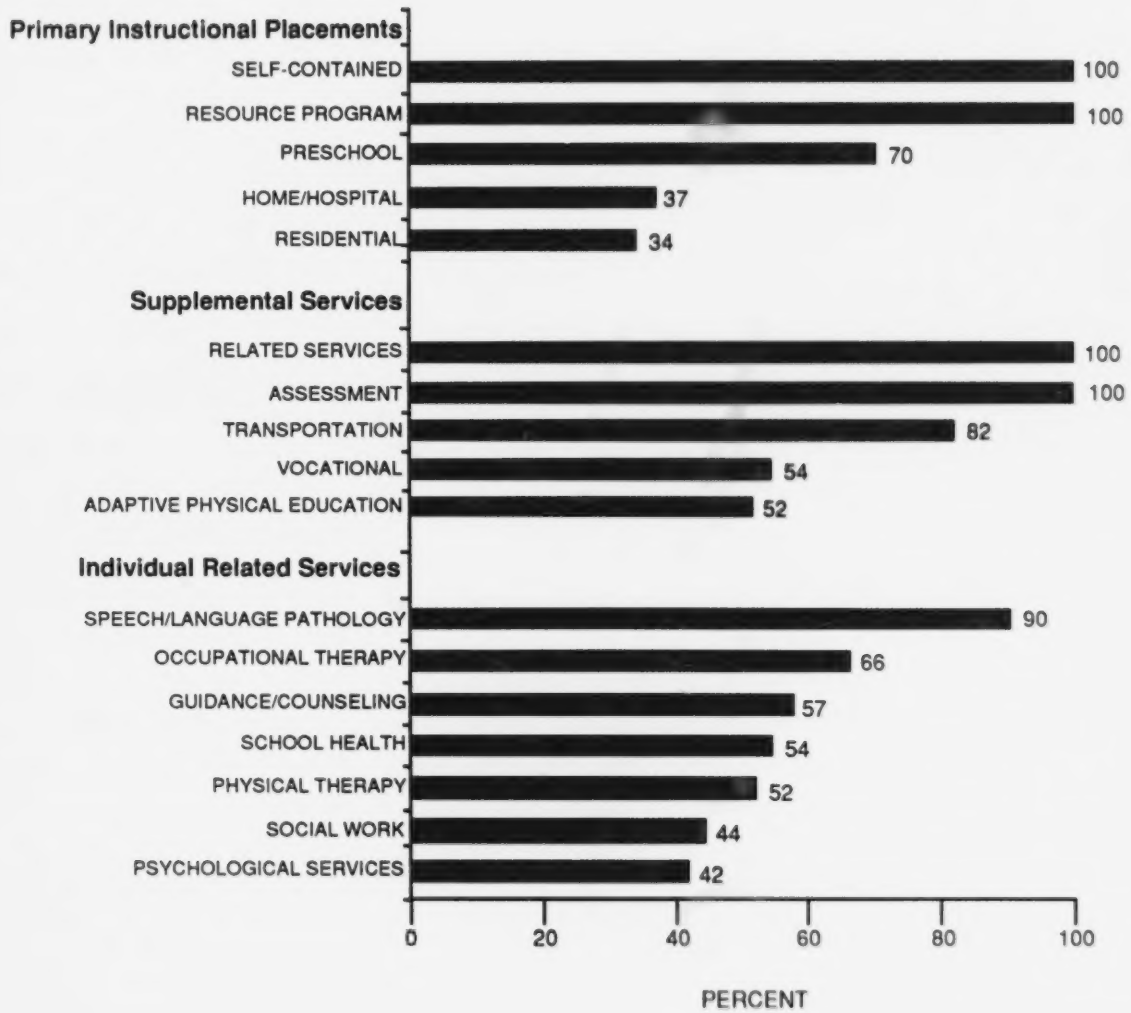
[11]All districts sampled in the Expenditures Survey had students receiving special education. It does not necessarily follow, however, that all districts in the nation have special education programs. Districts are obligated to provide special education if students with handicapping conditions live in the district. Conceivably some very small districts (or districts that exist only on paper) do not have such children, although even these districts would need to operate assessment and child find programs to identify children with handicaps. Recent data from another national sample of 2,000 ECIA Chapter 1 districts (over 90 percent of all districts receive federal ECIA Chapter 1 funds) indicated that 78 percent of these districts directly provided special education services. This estimate does not include districts whose special education population was served exclusively by cooperative agencies.

FIGURE 1.1

Percentage Of Districts With Students In Various Types Of Special Education Programs And Related Services, 1985-86



SOURCE: Expenditures Survey

The absence of various special education programs and services across districts must be interpreted cautiously. First, these findings are based upon program officials' knowledge about whether handicapped pupils in their district received particular programs or services from any provider. In some instances, they simply may not have known. Secondly, programs and services for students with low incidence handicaps are less likely to exist in districts with small enrollments because of the lower probability of such students residing in each of these districts. In fact, many of the sampled districts not reporting specific related services are districts with small enrollments. Moreover, some of these districts obtain services for such low incidence populations from other districts, private providers, or community clinics where this study did not identify specific components of a child's services. Finally, it is possible that the assistance entailed in some related services (for example, family counseling aspects of social work) in such districts is informally provided by special education teachers or other staff in the district and is not distinguished as a separate related service.

Enrollments in Special Education Programs and Services

Children with handicapping conditions are spread disproportionately across special education programs and supplemental services. This results from the uneven prevalence of various handicapping conditions, variations in the level of severity of different handicaps, and the arrangements districts use to serve students with various types of disabilities. Enrollments in different special education programs and related services are a major contributor to district expenditures because they dictate the number of units of a program or service that individual districts must provide.

Variations in the Prevalence of Handicapping Conditions

Table 1.1 offers two different views of the uneven distribution of students across handicapping conditions as estimated from the Expenditures Survey. Three handicapping conditions--learning disabilities, speech/language impairments, and mental retardation--account for the large majority of children enrolled in special education. Looking first at the handicapped student population relative to total public school enrollment indicates that approximately 5 percent of all students in the nation are classified as learning disabled, 3 percent are classified as speech impaired, and 2 percent as mentally retarded. Examining the composition of the handicapped population reveals that 45 percent of all handicapped pupils are learning disabled, 25 percent are speech impaired, and 14 percent are mentally retarded.[12]

Enrollments in Primary Instructional Placements

The percentages of students in each category of handicap, although related to enrollment in various special education programs and related services, do not directly translate into program enrollment levels. One type of special education program serves pupils with different handicapping conditions since program types (for example, self-contained classes) generally are associated with the severity of a child's handicap rather than the specific handicap classification.

Resource programs serve the large majority of special education students. Over two-thirds of students with handicapping conditions (68 percent) receive their primary special instruction in resource programs while less than a third (28 percent) obtain special instruction through self-contained programs (Figure 1.2). Four percent of the

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[12]The percentages of handicapping conditions derived from the Expenditures Survey correspond closely with those reported in the *Ninth Annual Report to Congress* for the 1985-86 school year (OSEP, 1987).

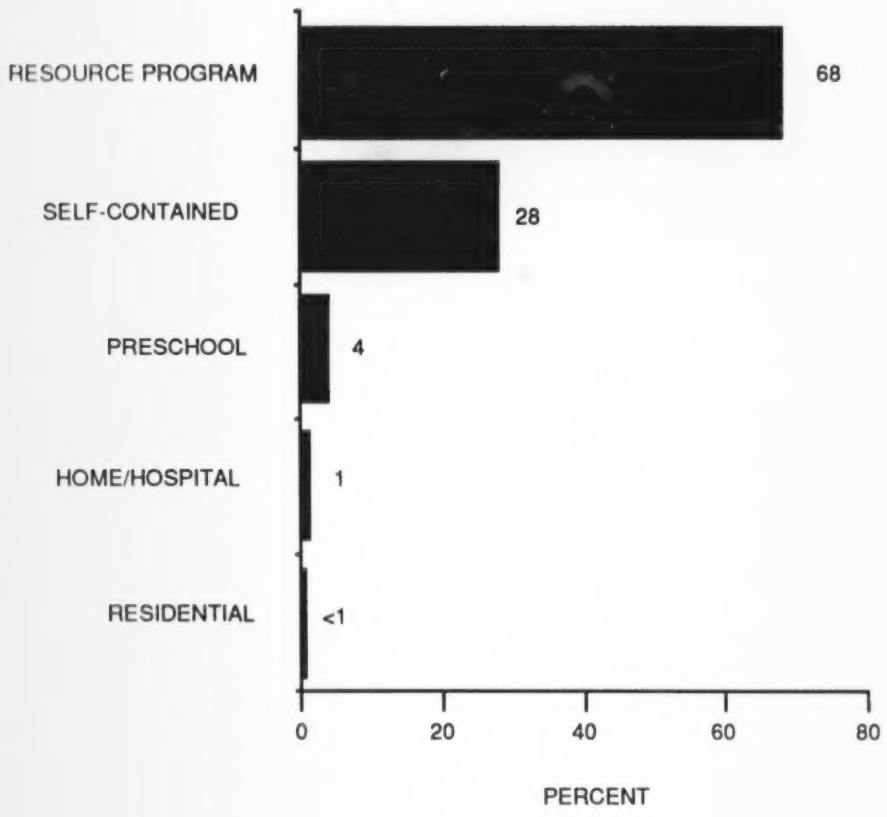
Table 1.1

Percentage of Total Handicapped Enrollment Receiving Special Education by Handicapping Condition

Handicapping Condition	Total Enrollment	Handicapped Enrollment
Learning Disabled	5%	45%
Speech Impaired	3	25
Mentally Retarded	2	14
Seriously Emotionally Disturbed	1	7
Orthopedically Impaired	<1	1
Multihandicapped	<1	2
Deaf	<1	<1
Deaf-Blind	<1	<1
Hard of Hearing	<1	1
Other Health Impaired/Autistic	<1	1
Visually Handicapped	<1	1
Non-Categorized	<1	3
Across All Conditions	11	100

FIGURE 1.2

Percentage Of Special Education Students Enrolled In Types Of Special Education Programs, 1985-86



SOURCE: Expenditures Survey

total handicapped student population nationwide is enrolled in preschool programs and 1 percent or less is enrolled in residential and home/hospital programs.[13]

Program enrollments and handicapping conditions, however, are somewhat related due to the fact that some conditions by definition involve a degree of severity that has implications for a child's placement in a particular program. Tables 1.2 and 1.3 compare student enrollment in self-contained and resource programs, first, by the percentage of students with different handicapping conditions participating in each program and second, by the percentage of that program's total enrollment that is accounted for by a particular condition. The vast majority of learning disabled (79 percent) and speech impaired (91 percent) students are enrolled in resource programs, while most mentally retarded (73 percent) and emotionally disturbed (67 percent) pupils are enrolled in self-contained programs.

Nevertheless, high prevalence handicapping conditions (learning disabled, speech impaired, mentally retarded, and emotionally disturbed) by virtue of their large numbers dominate enrollments in both types of programs. Several examples illustrate this dominance. Two high prevalence disabilities--learning disabled and speech impaired--comprise 88 percent of the total student enrollment in resource programs. Three high prevalence categories--students classified as mentally retarded (42 percent), learning disabled (25 percent), and emotionally disturbed (18 percent)--make up 85 percent of the enrollment in self-contained programs. Even though more than three-quarters of all children with multiple handicaps are in self-contained programs, the low number of students in this category results in these pupils constituting less than 6 percent of the self-contained enrollment.

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[13]These enrollment percentages for each type of program reflect existing service patterns and are not necessarily indicative of students' needs for services.

Table 1.2

Distribution of Self-Contained Program Enrollment
According to Handicapping Condition

Handicapping Condition	Students Served in Self-Contained Programs[a/]	Self-Contained Enrollment with Handicapping Condition
Learning Disabled	19%	25%
Speech Impaired	3	2
Mentally Retarded	73	42
Seriously Emotionally Disturbed	67	18
Orthopedically Impaired	54	2
Multihandicapped	77	6
Deaf	66	2
Deaf-Blind	48	<1
Hard of Hearing	39	2
Other Health Impaired	17	<1
Autistic	66	1
Visually Handicapped	17	<1
Non-Categorized	4	<1

a/ Column does not add to 100 because percentages apply to all students with that condition.

Table 1.3

Distribution of Resource Program Enrollment According to Handicapping Condition

Handicapping Condition	Students Served in Resource Programs[a/]	Resource Program Enrollment with Handicapping Condition
Learning Disabled	79%	52%
Speech Impaired	91	36
Mentally Retarded	18	4
Seriously Emotionally Disturbed	24	4
Orthopedically Impaired	24	<1
Multihandicapped	5	<1
Deaf	1	<1
Deaf-Blind	6	<1
Hard of Hearing	47	2
Other Health Impaired	17	<1
Autistic	1	<1
Visually Handicapped	69	1
Non-Categorized	3	<1

a/ Column does not add to 100 because percentages apply to all students with that condition.

The types of handicapping conditions represented in preschool programs differ noticeably from those in self-contained and resource programs serving older children (Table 1.4).[14] Among preschool programs, the composition of the enrollment is spread broadly across several handicapping conditions. Students classified as mentally retarded (25 percent), speech impaired (19 percent), and students not categorized (14 percent) comprise just over half of total enrollment in preschool programs, with all remaining conditions accounting for 10 or fewer percent of the total. In fact, 70 percent of all students not categorized across districts attend preschool programs.

A Note on Students Not Categorized and Non-categorical Programs

Many districts serve students in programs that are designed to serve a range of handicapping conditions (designated in this study as non-categorical programs but often referred to as cross-categorical programs) or students not identified by a specific disability (referred to as students not categorized). Eighty-three percent of all districts offer at least one non-categorical program. They overwhelmingly explain this service pattern as growing out of a philosophy that educational needs, not labels, should determine services.

Students not categorized and non-categorical programs are particularly common in preschool. Eighty-two percent of districts providing preschool special education programs offer non-categorical preschool programs. In contrast, just over 50 percent of districts provide non-categorical, self-contained and non-categorical, resource programs for students aged 6 through 21. As previously noted, over two-thirds of students not categorized are enrolled in preschool special education programs. The greater popularity of non-categorical programs and the decision not to categorize

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[14]Preschool programs reflect those found in the sample districts in the 1985-86 school year. Legislative focus on the handicapped population aged birth through 5 in recent years may have changed the patterns evident at the time of this survey.

Table 1.4

Distribution of Preschool Program Enrollment According to Handicapping Condition

Handicapping Condition	Students Served in Preschool Programs[a/]	Preschool Program Enrollment with Handicapping Condition
Learning Disabled	1%	7%
Speech Impaired	8	19
Mentally Retarded	6	25
Seriously Emotionally Disturbed	3	10
Orthopedically Impaired	19	1
Multihandicapped	12	2
Deaf	10	<1
Deaf-Blind	<1	6
Hard of Hearing	14	9
Other Health Impaired	11	1
Autistic	13	3
Visually Handicapped	10	3
Non-Categorized	70	14

a/ Column does not add to 100 because percentages apply to all students with that condition.

students in the preschool years may be partially attributable to the difficulty of diagnosing specific problems in these years.

Despite the terminology used, some students placed in non-categorical programs often are identified by a handicapping condition, a practice that occurs even when programs are intentionally non-categorical and not cross-categorical. As a result, several district respondents were able to identify the handicapping condition of students in the group of programs we term non-categorical. Consequently, the percentage of all handicapped students that are not categorized is considerably lower (3 percent) than the total percentage of handicapped students enrolled in non-categorical programs (27 percent).

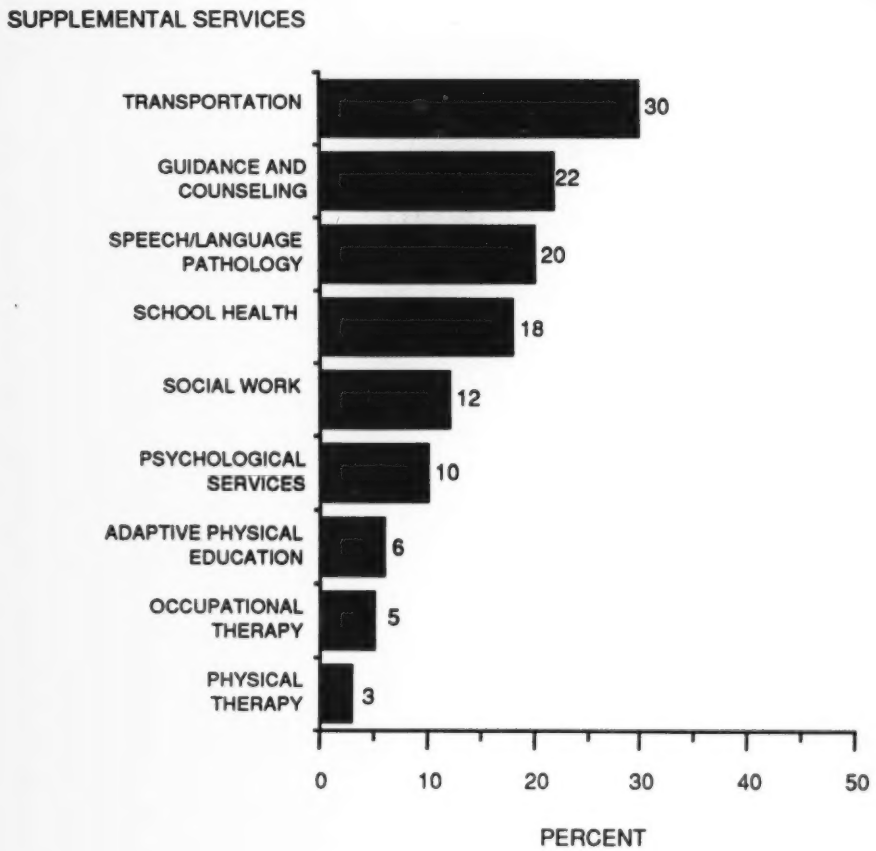
Enrollment in Supplemental Services

Estimates of the percentages of handicapped students receiving some form of supplemental service cannot be computed because students can be counted more than once in each supplemental service category. For example, some students are enrolled in two special vocational services (for example, work study and rehabilitation counseling). Also, because some pupils receive more than one related service, it is only meaningful to discuss enrollments for those specific related services where double counting does not occur. These are displayed in Figure 1.3.

Across the individual supplemental services included in Figure 1.3, special transportation reaches the largest percentage of pupils with disabilities (30 percent). Although the largest enrollment level among the related services displayed, it is noteworthy that this service reaches a relatively small percentage of all students enrolled in special education. The next most prevalent supplemental services received by handicapped children are special guidance and counseling and speech/language

FIGURE 1.3

Percentage Of Students With Handicaps Receiving Supplemental Services



SOURCE: Expenditures Survey

pathology. With the exception of school health, 12 percent or fewer of special education pupils are served by each of the remaining services listed in Figure 1.3.[15]

Enrollment levels for assessment services are not presented in Figure 1.3 because the students receiving these services include some students enrolled full-time in the regular education program as well as students placed in special education programs. The only meaningful measure of participation in assessment services is the percentage of total student enrollment in receipt of assessment. Based on the Expenditures Survey, approximately 6 percent of all pupils enrolled in school districts are involved in the special education assessment process annually. Although a precise breakdown of the proportion of this percentage represented by handicapped pupils is not possible, such students are likely to comprise the dominant share. Because assessment services encompass the entire process of referral through IEP preparation and re-evaluation of the student at least every three years, more than half of this 6 percent figure is likely to involve pupils undergoing re-evaluations.[16]

Districts in the Expenditures Survey were unable to provide estimates of the handicapping conditions of the students receiving most related services. However, this was not the case with respect to speech/language pathology services. Table 1.5 describes the breakdown of students receiving speech/language pathology services by handicapping condition. This table omits the category of speech/language impaired

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[15]Reporting enrollment levels for school health services was difficult for several respondents to the Expenditures Survey. Nurses often maintained logs of students receiving health services but they did not distinguish between students in the regular program and the special education program, nor could they indicate whether the health service was general in nature or specifically related to a child's disability. Consequently, only respondents' best estimates could be obtained in these situations. Enrollment percentages reflect this imprecision.

[16]If one-third of students identified for special education are re-evaluated each year, on average approximately 3.7 percent (one-third of 11 percent) of all students in a district undergo re-evaluations.

Table 1.5

Percentage of Students Receiving Speech/Language Pathology as a Related Service in School Districts and Cooperatives

Handicapping Condition	Speech/Language Pathology Enrollment
Learning Disabled	37%
Mentally Retarded	29
Seriously Emotionally Disturbed	5
Orthopedically Impaired	2
Multihandicapped	2
Hard of Hearing	3
Deaf	2
Visually Handicapped	<1
Autistic	<1
Deaf-Blind	<1
Other Health Impaired	<1
Students Not Categorized	21
Across All Conditions	100

since in this study those students are classified under resource programs. Learning disabled and mentally retarded students constitute two-thirds of students receiving speech/language pathology as a related service, demonstrating again the influence of high prevalence handicapping conditions on program enrollments. The category of students not categorized contributes a relatively high percentage of the total related services' enrollment in speech/language pathology services because respondents were unable to identify the handicapping condition of a fifth of the students receiving the service.

DIFFERENCES IN THE DELIVERY OF SPECIAL EDUCATION PROGRAMS AND RELATED SERVICES ACROSS DISTRICTS

Although individual districts differ in the percentage of handicapped pupils and patterns of services, few systematic differences were found among districts along dimensions of district size, urbanicity, region, and wealth. The one notable difference is the tendency for large, urban school districts to serve a larger share of their special education enrollment in self-contained programs (Table 1.6). Thirty-nine percent of the handicapped enrollment in large districts is served in self-contained programs compared to 19 percent in small districts and 23 percent in medium-sized districts.[17]

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[17]District size refers to the total number of students enrolled in the district. It is divided into three categories (small, medium, and large). The cutoff points and median enrollment levels for each category are:

Small - less than 2,745 students enrolled, median = 1,514.
Medium - more than 2,745 but less than 9,567 total students, median = 6,987.
Large - more than 9,568 students enrolled, median = 40,157.

These size categories closely parallel those used in the Rand study of special education (Kakalik, 1981).

MSA (Metropolitan Statistical Area) is coded into three categories using the Summary Tape File 3F Census mapping of school district boundaries (STF3F): Center City; Suburban; Rural. The STF3F is extracted from a special tabulation of the 1980 Census data. It consists of 1980 housing and population data mapped to the school district level.

Table 1.6

Distribution of Enrollment in Special Education Instructional Programs by District Size and MSA

Program Type	District Size			MSA			All Districts[a/]
	Small	Medium	Large	Rural	Suburban	Center City	
Preschool	5%	4%	9%	6%	5%	8%	6%
Self-Contained	19	23	39	16	24	34	22
Residential	<1	2	1	<1	1	1	1
Resource Program	74	75	50	80	70	53	73
Home/Hospital	1	<1	1	1	<1	1	1

a/ These percentages are calculated using district weights; hence they differ slightly from the estimates in Figure 1.2 which were computed using handicapped pupil weights. District weights are more appropriate to comparisons involving district characteristics. Handicapped weights are used to generate estimates related to the national population of students with handicapping conditions.

Similar patterns occur when the urbanicity of districts is considered. Thirty-four percent of the special education enrollment in urban districts is enrolled in self-contained programs compared with 16 percent in rural districts and 24 percent in suburban districts.

The greater availability of self-contained programs in large and urban districts raises a number of questions. Conceivably large districts may be able to operate self-contained classes more efficiently because of their larger enrollments. The greater prevalence of these programs in large districts would suggest, however, barring any significant difference in the severity levels of the handicapped student population, that pupils in these districts are more likely to be assigned to self-contained programs than are children in smaller districts (see Appendix C, Table 1.15). Unfortunately, since this study contains no direct measure of the severity of students' disabilities within specific conditions, we cannot assess whether a large proportion of students in large, urban districts are more severely disabled as a group than students in other districts.[18]

There is some evidence that the composition of the handicapped population is slightly different in large districts and urban districts. The percentage of students classified as mentally retarded is slightly larger in these districts and the percentage of learning disabled students is smaller than in other districts. However, the standard errors attached to these estimates caution against relying much on these differences.

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[18]A recent national survey of elementary schools with special education programs for mildly handicapped pupils indicates similar patterns. Schools in large, urban areas more frequently report using self-contained classes to serve these pupils (Moore and Steele, 1988).

CHAPTER 2

DIFFERENCES IN THE DELIVERY OF SPECIAL EDUCATION SERVICES

Special education programs and services differ from each other in important ways other than types of students enrolled. Class sizes, caseloads, time spent in the special program and in regular education classes, and whether the program staff are based in the school or travel to several schools are dimensions of service delivery that vary across types of programs and services. Additionally, different providers are likely to serve specific student populations or provide particular services. These variations have an important influence on patterns of expenditures across programs. Equally important, they present a picture of how services are delivered to pupils with disabilities.

Even within types of programs or services, variations occur. The program and service types previously described are composite categories that group programs and services with a wide range of characteristics that produce cost variations within each major type of program. For example, many districts operate resource programs for students with learning disabilities that have higher teacher caseloads than do resource programs for hard of hearing pupils. Similarly, one type of resource program may serve students for an average of an hour each day, while another serves students for an average of two and a half hours each day.

This chapter highlights the variation across and within programs and services, describing regular education participation patterns, pupil/teacher ratios and caseloads, and providers of special education programs and services. It underscores the considerable variety present in special education--a variety that typologies and averages across categories obscure. The chapter focuses on the four major programs and services offered by districts: self-contained programs; resource programs; preschool programs; and supplemental services. We do not include information about

service delivery patterns for residential and home/hospital programs because the Expenditures Survey gathered only cost and enrollment data for these programs.[19]

SELF-CONTAINED PROGRAMS

A defining feature of self-contained programs is the large amount of time students spend in special instruction relative to the time they spend in regular education. Pupils in self-contained programs spend an average of three-quarters or more of their school day in special instruction. Stated differently, most of these students (85 percent) spend an average of 28 percent of their school day, or 1.7 hours out of a 6 hour school day, in regular education classes (Table 2.1).

Within these overall averages, specific self-contained programs vary considerably with respect to the actual time students spend in special as opposed to regular instruction. Some self-contained programs mainstream students into regular education environments for only a few minutes a day, while others do so for half of each day. These patterns reflect, at least in part, the relative severity of the handicaps of students served in specific programs.

A few comparisons drawn from Table 2.1 are instructive. Autistically and orthopedically impaired students are less likely to participate in regular education classes than are students with speech, hearing, or visual impairments. Students in self-contained programs for the hard of hearing spend the most hours each day in regular education classes (3.6) while pupils in self-contained programs for multi-handicapped and autistic youth spend the least (.9 hours).

The activities in which students participate in the regular education program vary. Students from self-contained classes are not consistently restricted in regular education

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[19]Another study commissioned by ED's Office of Special Education Programs, A Study of Programs of Instruction for Handicapped Children and Youth in Day and Residential Facilities, will provide information on service delivery patterns within residential programs.

Table 2.1

Self-Contained Programs: Average Percentage of Students and Hours Spent Each School Day in Regular Education

Self-Contained Program Type	Students Spending Time in Regular Education	Average Hours/Day Spent in Regular Education	Average Percent of School Day Spent in Regular Education[a/]
Learning Disabled	100%	2.1	35%
Speech Impaired	100	1.1	18
Mentally Retarded	86	1.3	22
Seriously Emotionally Disturbed	98	1.9	32
Orthopedically Impaired	54	1.8	30
Multihandicapped	73	0.9	15
Deaf	81	1.8	30
Deaf-Blind	*	*	*
Hard of Hearing	100	3.6	60
Other Health Impaired	*	*	*
Autistic	31	0.9	15
Visually Handicapped	100	2.1	35
Non-Categorical	82	1.9	32
Across All Self-Contained Programs	85	1.7	28

a/ Column is calculated by dividing second column by 6 hours, the standard duration of a regular school day.

* Too few cases for statistical significance.

classes to activities such as recess, art, physical education, and lunch. Some students also receive a portion of their instruction in basic subject areas from the regular class. District staff participating in the Expenditures Survey reported that this occurred frequently for learning disabled pupils placed in self-contained programs and less frequently for mentally retarded youth in such programs.

Pupil/teacher ratios are an indication of the intensity of professional staff resources used in special education programs. Overall, the ratios of pupils to teachers in self-contained programs are noticeably smaller than the 20 pupils per teacher characteristic of regular education programs in the Expenditures Survey. Table 2.2 displays the average pupil/teacher ratio as well as class size for specific self-contained programs. If classes rely on the presence of more than one teacher, the pupil/teacher ratio will be less than class size. However, the two measures parallel each other closely, indicating that most self-contained classes function with just one teacher. Pupil/teacher ratios across specific programs range between four and 13 students per teacher. Self-contained classes for the high prevalence categories of learning disabled, speech impaired, mentally retarded, emotionally disturbed, and non-categorical average nine students, while those for the remaining low prevalence handicaps average six students.

Districts usually operate under policies that establish minimum and maximum class sizes for self-contained programs. District administrators indicated that these limits are derived from state requirements and an assessment of student needs in specific programs. When maximum levels for a class are reached but are less than the minimum necessary to form a new class, districts commonly add an aide to assist in the full class. When the number of students falls below the minimum for a program not previously provided in a district, administrators usually rely on an external agency

Table 2.2

Average Pupil/Teacher Ratio and Class Size of Self-Contained Programs

Self-Contained Program Type	Average Pupil/Teacher Ratio	Average Class Size
Learning Disabled	13	13
Speech Impaired	9	9
Mentally Retarded	8	8
Seriously Emotionally Disturbed	9	9
Orthopedically Impaired	8	8
Multihandicapped	5	6
Deaf	7	7
Deaf-Blind	*	*
Hard of Hearing	4	6
Other Health Impaired	*	*
Autistic	5	5
Visually Handicapped	7	7
Non-Categorical	10	10
Across All Self-Contained Programs	9	9

* Too few cases for statistical significance.

such as a cooperative to serve the student or, as a second solution, they assign the student to an alternative program within the district.

RESOURCE PROGRAMS

The feature common to all resource programs is students' receipt of the majority of their instruction through the regular education program. By definition, resource programs provide special instruction to pupils for less than half the school day. Pupils in resource programs spend an average of 6 hours per week (or 20 percent of their school week) receiving special instruction.

While pupils in resource programs receive most of their instruction in the regular education program, the variation among students in programs for specific disabilities is substantial (Table 2.3). On average, speech and language impaired students spend the least time in resource programs and mentally retarded students spend the most time in resource programs. But even these figures fail to portray adequately the extent of variation within specific programs. Most program administrators reported that students in the same specific program rarely received special instruction for the same amount of time. Rather, teachers determined the amount of special instruction needed by individual students and arranged schedules accordingly.

Caseloads, which are the equivalent of the pupil/teacher ratios for self-contained programs, measure the intensity of professional staff resources allocated to students in resource programs. However, unlike pupil/teacher ratios in self-contained programs, caseloads do not reflect class sizes. In resource programs, teachers or other professionals work with different numbers and groupings of students over the course of the school week. Caseloads express the total number of pupils assigned to a full time equivalent (FTE) teacher as measured in the given week when the Expenditures Survey staff visited the district.

Table 2.3

Average Hours Per Week Students Spend in Resource Programs

Program Type	Mean Hours/Week in Resource Program
Learning Disabled	7
Speech Impaired	2
Mentally Retarded	11
Emotionally Disturbed	5
Orthopedically Impaired	*
Hard of Hearing	4
Visually Handicapped	4
Non-Categorical	10
Across All Resource Programs	6

* Too few cases for statistical significance.

The average caseload across all resource programs is 26 students (Table 2.4). However, this average is heavily influenced by service delivery patterns among the high prevalence populations of learning disabled and speech impaired students that dominate enrollment in resource programs. Caseloads vary more across specific programs than do pupil/teacher ratios in self-contained programs. They range from 10 for visually handicapped programs to 50 for speech programs, with learning disabled programs averaging 20. Average caseloads across all resource programs serving high prevalence handicaps (learning disabled, speech impaired, mentally retarded, and emotionally disturbed) are 34 pupils while those serving the low prevalence populations are 12. One reason for the lower caseloads characteristic of resource programs for low prevalence conditions is the individualized nature of these programs, for example, for hard of hearing and visually handicapped students. Resource programs for higher prevalence conditions typically involve groups of children as opposed to individual assistance; as a result, teachers carry larger caseloads.

District program administrators reported that few resource programs provide special education instruction in the student's regular classroom. Over three-quarters of districts reported that students were always pulled out of the regular education class to participate in the resource program. Only 24 percent of districts provided resource programs that operated in the students' regular classroom. Resource programs for visually handicapped students frequently took place in the regular classroom. The predominant use of pull-out strategies in most resource programs may in part reflect the tendency to group students to maximize staff resources by allowing teachers to serve more students at the same time. Tradition and views about feasibility are probably strong influences as well.

Unlike self-contained programs that operate within a single school, resource programs differ according to whether staff work as itinerant teachers traveling

Table 2.4

Average Caseload of Resource Programs[a/]

Program Type	Average Caseload
Learning Disabled	20
Speech Impaired	50
Mentally Retarded	10
Emotionally Disturbed	16
Orthopedically Impaired	*
Hard of Hearing	12
Visually Handicapped	10
Non-Categorical	17
Across All Resource Programs	26

a/ Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

* Too few cases for statistical significance.

between several schools or whether they are based in one school.[20] Itinerant programs are advantageous to districts where few students needing a resource program attend each school and where districts are committed to students remaining in their neighborhood school. However, itinerant programs may have implications for the cost of a program. Their caseloads may differ from school-based programs because of travel time resulting in less time available to instruct students. On the other hand, itinerant programs, on average, are marked by larger caseloads than school-based programs perhaps because they serve students across several schools.

Speech, hard of hearing, and visually handicapped resource programs are those most commonly provided on an itinerant basis (Table 2.5), while learning disabled and non-categorical programs are usually school-based. Caseloads do not differ particularly when specific programs are compared by their itinerant or school-based nature. Itinerant speech/language pathology programs have slightly lower caseloads than do the school-based versions. The opposite holds true for learning disabled resource programs. The size of the sampling error, however, cautions against taking these differences seriously.

PRESCHOOL PROGRAMS

Although the Expenditures Survey's coverage of preschool programs precedes recent federal assistance to expand services for this population, the importance of these programs warrants looking at their characteristics in the 1985-86 school year. Forty-eight of the 60 districts sampled in the Expenditures Survey provided some form

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[20]Distinguishing itinerant and school-based programs is not always straightforward. Many programs are shared between two schools. In contrast, some programs include as many as five or six schools. The Expenditures Survey defined programs in one or shared between two schools as school-based, and those serving more than two schools as itinerant.

Table 2.5

Comparison of Resource Program Caseloads:[a/] School-Based vs. Itinerant Programs

Program Type	School-Based Programs		Itinerant Programs	
	Average Caseload	Percent of Districts Offering Program	Average Caseload	Percent of Districts Offering Program
Learning Disabled	19	59%	25	23%
Speech Impaired	55	26	47	70
Mentally Retarded	10	19	*	<1
Seriously Emotionally Disturbed	9	10	*	10
Orthopedically Impaired	*	<1	*	<1
Hard of Hearing	10	1	13	31
Visually Handicapped	9	1	10	11
Non-Categorical	17	46	16	2
Across All Resource Programs	21	86	37	77

a/ Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

* Too few cases for statistical significance.

of preschool special education program. In fact, these districts reported offering preschool services for children with handicaps for an average of nine years.

Preschool programs in 1985-86 differed noticeably by the age of the children served. Programs for children aged birth through 2, or infant/toddler programs, were less numerous than those for children aged 3 through 5. Data from the Expenditures Survey indicate that only 14 percent of the entire preschool special education program enrollment fell in the age groups of birth through 2 years. Infant/toddler programs in districts also were structured differently. More districts offered infant/toddler programs that were home-based than offered school-based programs. Both types of infant/toddler programs involved between one and five hours of instruction per week.

Preschool programs for children aged 3 through 5 usually were school-based, and were slightly more likely to be half-day programs than full-day programs. Students served in preschool programs may be those whose impairments are more easily identified and likely to require continued assistance from special education. Special education administrators overwhelmingly reported that the great majority of children in preschool special education programs continue in special education after preschool.

Caseload averages for each specific preschool program are presented in Table 2.6. The low number of infant/toddler programs in the sample produces fairly imprecise caseload estimates. The school-based programs were characterized by lower caseloads but this may be due in part to differences in the average number of hours per week each program served children. If the home-based programs included visits to infants for only an hour per week, the caseloads would be expected to exceed those for school-based programs that operated an hour or two each day. Unfortunately data to explore this question were not collected.

Caseloads for the older preschool programs averaged 16 students for the half-day or less programs and six for programs that ran longer than a half day. Although

Table 2.6

Average Caseload of Special Education Preschool Programs[a/]

Program Type	Average Caseload
Ages 0-3/Home-Based/1-5 Hours Per Week	24
Ages 0-3/School-Based/1-5 Hours Per Week	16
Ages 3-5/School-Based/5-15 Hours Per Week	16
Ages 3-5/School-Based/Greater Than 15 Hours Per Week	6

a/ Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

teachers had larger caseloads in the half-day or less programs, this may be attributable to a large number of part-time teachers in these programs. Because caseloads are based on program enrollments divided by the number of full-time equivalent teachers, programs using part-time staff will exhibit higher caseloads than the actual numbers of students individual teachers see. For example, if a teacher taught only a half-day preschool program every day, her full-time equivalent caseload would total 16 pupils. However, because she is only employed part-time, she is actually teaching only 8 students each day. The 3 through 5 aged programs that provide services less than 15 hours per week also may serve each student only a few days of the week, thus increasing the total number of students taught by a teacher.[21] Caseloads for preschool programs of more than 15 hours a week (or more than a half day each day) can be viewed as rough estimates of class size.

SUPPLEMENTAL SERVICES

Supplemental services encompass a broad range of services, leading one to expect substantial variation across dimensions of service delivery. Consistent with this expectation, the average caseloads and the itinerant versus school-based location of specific types of services differ noticeably.

Caseloads are appropriate for describing most specific supplemental services but not all. Services that rely on a clearly identifiable type of professional staff easily lend themselves to caseload analysis. However, services such as assessment include an array of professional staff--for example, special education teachers, regular education teachers, school psychologists, and special consultants. Consequently, expressing a pupil caseload based on the number of pupils receiving assessment services of one form

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[21]Caseloads and pupil/teacher ratios are calculated using full-time equivalent teachers and professionals, but not full-time equivalent student counts. Each student counts as one student regardless of the amount of time spent in the program.

or another is more confusing than helpful.[22] Similarly, caseloads for special transportation are not particularly meaningful since the number of pupils per bus driver or special attendant is highly influenced by the geographic and enrollment size of individual districts.

Caseloads are appropriate for a select group of supplemental services, however. As might be expected, they span a substantial range (Table 2.7). School health services represent the high end of the continuum with an average caseload of 99 students.[23] At the low end of the continuum are occupational therapy services with an average caseload of 37 students.

Respondents to the Expenditures Survey indicated that several related services are provided on an individual basis. Occupational therapy, physical therapy, psychological services, and school health services tend to be provided in a one-on-one situation. Speech/language pathology services, on the other hand, vary in the approach used. In some cases these services are offered in small groups, while in others they are provided on an individual basis. Nevertheless, caseloads for most related services generally exceed those for specific resource programs largely because these services, on average, may be less frequent or of shorter duration when they are provided.

This general statement, however, applies only to the average situation across all students. In fact, a specific supplemental service may vary substantially in the amount of time an individual child receives treatment. For example, district program

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[22]Enrollment data from the Expenditures Survey cannot be disaggregated by the type of service within the overall assessment program. For example, it is not possible to specify the caseload for a full-time equivalent school psychologist who administers tests to pupils referred to and in special education unless one assumes that all students receiving assessment services are seen by a school psychologist.

[23]In several districts in the sample, respondents' estimates of special education enrollments for school health services were difficult to obtain. Respondents frequently could not provide precise estimates of the number of students with handicaps receiving such services. Consequently, these caseload estimates are imprecise and reflect the best guesses of school nurses and site visitors collecting the data.

Table 2.7

Average Caseload of Selected Supplemental Services[a/]

Supplemental Service	Average Caseload
Adaptive Physical Education	62
Occupational Therapy	37
Physical Therapy	51
Speech/Language Pathology	52
Psychological Services	47
School Health Services	99
Social Work Services	63
Guidance and Counseling Services	64

a/ Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

administrators indicated that the time students received physical or occupational therapy each week could range between 30 minutes and over two hours.

The one area where caseloads for supplemental services parallel those for resource programs is speech/language pathology. The caseloads for speech pathologists in the two categories are quite close. The average caseload in resource programs for pupils with speech and language impairments is 50, while that for speech/language pathology as a related service is 52. The time students spend receiving these services is also very similar.

The professional staff who provide specific related services vary in whether they are school-based or itinerant. A few related services exhibit a clear pattern. Speech/language pathology services are typically provided through itinerant staff as are occupational and physical therapy. Guidance and counseling services, however, typically are school-based.

THE DIRECT PROVIDERS OF SPECIAL EDUCATION PROGRAMS AND SERVICES

In addition to contrasts in caseload and structural design, special education programs and services differ with respect to which agency directly provides the program or service. Although special education is the responsibility of the school district where a child resides, districts to varying degrees rely on other providers to obtain necessary forms of instruction and treatment.

A district's use of other providers is influenced by a combination of factors such as the lack of a particular program or service in the district, state policies that assign responsibility for certain programs or services to intermediate or cooperative educational agencies, an inability to directly hire staff who can provide a service or treatment, and so few students requiring a program or service that economies of scale dictate seeking it externally. Arrangements with other providers are significant to

identifying special education expenditures not only because a failure to include them would provide only a partial picture, but because the expense of programs may vary depending on the service provider.

Five categories of providers encompass the range of external agencies used for the direct provision of some programs and services: (1) the district; (2) cooperative agencies; (3) private schools for handicapped students; (4) other state or local agencies, such as state schools for the handicapped or other districts outside the district of a student's residence; and (5) purchased services. The last category applies to situations in which districts obtain services under contract from private or public entities such as clinics or private practitioners. To simplify some presentations, we sometimes combine the categories of purchased service providers and other state or local agencies.[24]

School districts directly serve the vast majority of pupils enrolled in special education (Table 2.8). Over 80 percent of all special education students in the nation are served directly by school districts. Cooperatives are the second most common provider, but serve only 12 percent of handicapped students nationwide. The enrollment in cooperatives, however, is divided more evenly among preschool, self-contained, and resource programs than is the enrollment served directly by school districts, which is concentrated in resource programs. Very low percentages of students are served by private schools, other state or local agencies, or through the purchase of services.

Much the same patterns emerge when the number of students with different handicaps are apportioned across providers (Table 2.9). Consistently, districts directly

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[24]A variety of funding mechanisms characterize districts' reliance on external providers. Different providers may receive reimbursement directly from the district, or they may obtain payment or operating revenue directly from the State Education Agency. In some situations, districts may pay a portion of the expense and the state or cooperative may pay the remainder. The Expenditures Survey identified the expenses associated with the program or service, but did not identify payment arrangements among providers.

Table 2.8

Percentage of Special Education Students Receiving Programs and Services by Provider

Program/Service	Provider				
	District	Co-op	Private	State/ Local Agencies	Purchased
Preschool	2%	1%	<1%	<1%	<1%
Self-Contained	21	4	1	2	<1
Residential	<1	<1	<1	<1	<1
Home/Hospital	<1	<1	<1	<1	<1
Resource Program	59	7	<1	1	1
Across All Programs/Services	83	12	1	2	1

serve the majority of students within each category of handicap. However, external providers play a larger role as the perceived severity of students' handicapping condition increases and as the prevalence of the condition declines. For example, districts directly serve 89 percent of students with learning disabilities, but only 45 percent of students who are multiply handicapped.

Although private schools and other state or local agencies serve a small fraction of the total population receiving special education, this fraction carries considerable importance both with respect to issues of expense and least restrictive placement. The total enrollment in residential programs, for example, is divided between private schools, which serve around a third of such students, and other state or local schools or agencies, which serve the remainder. Private school enrollments are only partially made up of students enrolled in residential schools, however. Three-quarters of students served by private schools attend day programs. Enrollments in other state or local agencies are similarly divided between day and residential programs.

Districts also rely on a range of external providers to deliver specific supplemental services to pupils.[25] Districts are much less likely to provide occupational or physical therapy directly but are major providers of speech/language pathology, adaptive physical education, guidance and counseling, and assessment services (Table 2.10).

Only about a third of students receiving occupational and physical therapy services receive them from staff employed by the district. Between a half and a third of such students are served through purchased service arrangements, and the remainder by cooperatives. Districts typically reported that they purchase these services because of staff shortages and difficulties in hiring these therapists as employees.

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[25]Data are not available regarding providers of specific supplemental services for handicapped students enrolled in private schools or other state and local agencies.

Table 2.9

Percentage of Special Education Students Receiving Special Education by Provider

Handicapping Condition	Provider				
	District	Co-op	Private	Other[a/]	Total
Learning Disabled	89%	8%	2%	2%	100%
Speech Impaired	80	19	<1	1	100
Mentally Retarded	70	21	3	7	100
Seriously Emotionally Disturbed	64	19	8	9	100
Orthopedically Impaired	64	29	3	5	100
Multihandicapped	45	27	12	16	100
Deaf	24	14	14	48	100
Deaf/Blind	49	5	3	43	100
Hard of Hearing	50	23	<1	27	100
Other Health Impaired	61	7	<1	31	100
Autistic	58	15	17	10	100
Visually Handicapped	60	17	1	22	100
Students Not Categorized	39	39	<1	23	100

a/ Includes state and local agencies and purchased services.

Table 2.10

Percentage of Special Education Students Receiving Supplemental Services from Various Providers

Supplemental Service	Provider				
	District	Co-op	Purchased Service	Other[a/]	Total
Adaptive Physical Education	84%	14%	1%	2%	100%
Occupational Therapy	32	25	36	7	100
Physical Therapy	29	17	49	6	100
Speech/Language Pathology	82	17	<1	1	100
Psychological Services	76	5	15	3	100
School Health Services	71	5	14	10	100
Social Work Services	71	28	1	<1	100
Transportation Services	55	3	42	<1	100
Guidance and Counseling Services	92	6	<1	1	100
Assessment	92	8	<1	<1	100
Special Vocational	64	24	8	4	100

a/ Includes private schools, state schools, other state agencies, other local agencies, and other public schools.

Special transportation services also are frequently provided through purchased service arrangements. Forty-two percent of students receiving special transportation services are served by personnel not directly employed by the district.

SERVICE DELIVERY VARIATIONS ACROSS DISTRICTS

Although individual districts differ from one another in their delivery of programs and services, few systematic service delivery differences emerge related to districts' size or urbanicity.[26] Pupil/teacher ratios for self-contained programs and teacher caseloads for resource programs vary little by district size and urbanicity. Supplemental service caseloads differ considerably from district to district; this variability, however, appears randomly distributed and not directly a function of the enrollment size or metropolitan status of a district. Consistently high standard errors characterize average caseload values reflecting the large variation among districts and, in some instances, too few districts contributing to the estimate.

Districts' reliance on other providers to serve students with handicaps directly is linked with districts' size and urbanicity. Not surprisingly, most large districts and urban districts directly provide the instructional programs and supplemental services needed by students (Table 2.11). Three types of districts are likely to rely on cooperatives to serve their students: small districts; rural districts; and suburban districts.

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[26]These findings are based on cross-tabulations of measures of service delivery and district size and urbanicity. Further analyses utilizing more rigorous methods may demonstrate a more complex relationship between various district characteristics and differences in service delivery.

Table 2.11

Percentage of Special Education Students Receiving Programs and Services from Various Providers by District Size and Metropolitan Status

Provider	District Size			MSA			All Districts
	Small	Medium	Large	Rural	Suburban	Center	
District	68%	86%	97%	84%	59%	88%	73%
Co-op	28	8	1	12	36	6	22
Private	1	2	1	1	1	1	1
State/Local Agencies and Purchased Services	4	4	2	3	4	5	4

CHAPTER 3

EXPENDITURES FOR SPECIAL EDUCATION PROGRAMS AND SERVICES

How much do the special education programs and services previously described cost? This chapter addresses that question. A common theme throughout the chapter is the importance of recognizing the variations in costs for different types of programs and services, particularly when different providers are used or when individual districts are compared. These cost variations are connected to several interrelated factors: the intensity of different instructional arrangements; the impairments of the students served in different arrangements; and the mix of personnel and non-personnel resources unique to different programs and services. Thus, while we begin with an estimate of the overall cost per child of special education, we break this estimate apart to reveal the variation within it.

NATIONAL OVERVIEW OF SPECIAL EDUCATION EXPENDITURES

National Average Per-Pupil Expenditures

The nation spent an average of $3,649 per pupil and a total of about $16 billion on special education during the 1985-86 school year, according to the data collected by the Expenditures Survey.[27] These special education dollars constituted 12 percent of all public elementary and secondary education expenditures in that year. These estimates include all expenditures for special education instructional programs, supplemental services, and support services, and are in addition to expenditures for

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[27]The average per-pupil special education expenditures presented in this report were calculated by summing all costs of special education within a district and dividing by the total unduplicated count of pupils receiving special education. Student counts are not translated into full-time equivalent (FTE) student counts, as is the practice in some states which use these calculations in their funding formulas. FTE measures of cost would produce higher average values per pupil because they reflect the average cost of providing special education for a student enrolled full-time each day in special education.

regular education or other categorical programs that children with disabilities may receive. As a point of comparison, regular education expenditures amounted to $2,780 per pupil in the 1985-86 school year. Regular education expenditures for handicapped pupils are excluded from the cost estimates presented in this chapter. Total expenditures for students with disabilities, which include these regular education costs, are the focus of Chapter 4.[28]

The national average per-pupil expenditure of $3,649 for special education constitutes an increase of 10 percent in constant dollars when compared to the parallel estimate developed in the last national study of special education expenditures. In that earlier study, the Rand Corporation (Kakalik et al., 1981), using a roughly comparable approach, calculated an average per pupil estimate of $1,923 for the 1977-78 school year.[29] If we take the effects of inflation into account, the $1,726 difference between the two studies translates into an adjusted change of about 10 percent (or $189) in constant 1977-78 dollars (Table 3.1).[30] Regular education costs per child, as measured in the two studies, increased only 4 percent when adjusted to constant dollars. It should be noted that the constant dollar increase in total expenditures, as opposed to

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[28]National averages should be considered carefully as they imply that all programs and other resources are used equally by all students. This clearly is not the case. For example, the national estimate includes the cost of special school administration from 27 districts in the sample divided by the number of students served by all special education programs in all districts. Thus, national averages are artificial constructs.

[29]The methodology employed by the Rand Corporation, based on a resource utilization approach to supplemental expenditures, is sufficiently similar at the aggregate level to permit this comparison; the primary differences between that earlier work and this present study are in the calculation of program-specific expenditures rather than overall per pupil expenditures for special education. The earlier work also included a food services expenditures value where this study does not. That amount was subtracted from the Rand estimate for these comparisons. In addition, capital and equipment costs are amortized in this study while the earlier study used current year expenditures.

[30]The constant dollar conversion was based on the average monthly Department of Labor Consumer Price Index-W amount for the 10-month school years (September through June) of 1977-78 and 1985-86.

TABLE 3.1

Average Total Per-Pupil Expenditures for Special and Regular Education Programs

Type of Education	1985-86 Estimate[a/]	Constant Dollar Increase 1977-78[b/] to 1985-86
Special Education	$3,649	10%
Regular Education	2,780	4

a/ Expenditures Survey.

b/ Kakalik et al. (1981), The Cost of Special Education, Santa Monica, California: The Rand Corporation.

average per-pupil expenditures, has been greater than 10 percent because during this period the number of students identified with handicapping conditions also increased by about 9 percent. About 340,000 more students with handicapping conditions were reported in 1985-86 than in 1977-78, an increase that mainly is attributable to growth in the number of students classified as learning disabled.

The $3,649 estimate of special education costs per student represents the national average. In fact, districts vary considerably in the amount they spend per child for special education. Half of the districts contributing to this average spend between $2,831 and $4,490 per pupil for special education (the interquartile range). Twenty-five percent have per-pupil costs below $2,831 while costs in the other 25 percent exceed $4,490.

Cost Components of Special Education Expenditures

Figure 3.1 identifies the major cost components of the average per-pupil expenditure of $3,649 spent for students' special education. Nearly two-thirds (62 percent) of the funds spent nationally on special education are for direct instructional program expenditures, such as salaries for teachers and aides, textbooks, and workbooks.[31] The next largest component, student assessment, accounts for 13 percent of all special education expenditures and involves regular education as well as special education students. Support services account for 11 percent, while related services, including physical therapy, social work services and nearly 30 other services, account

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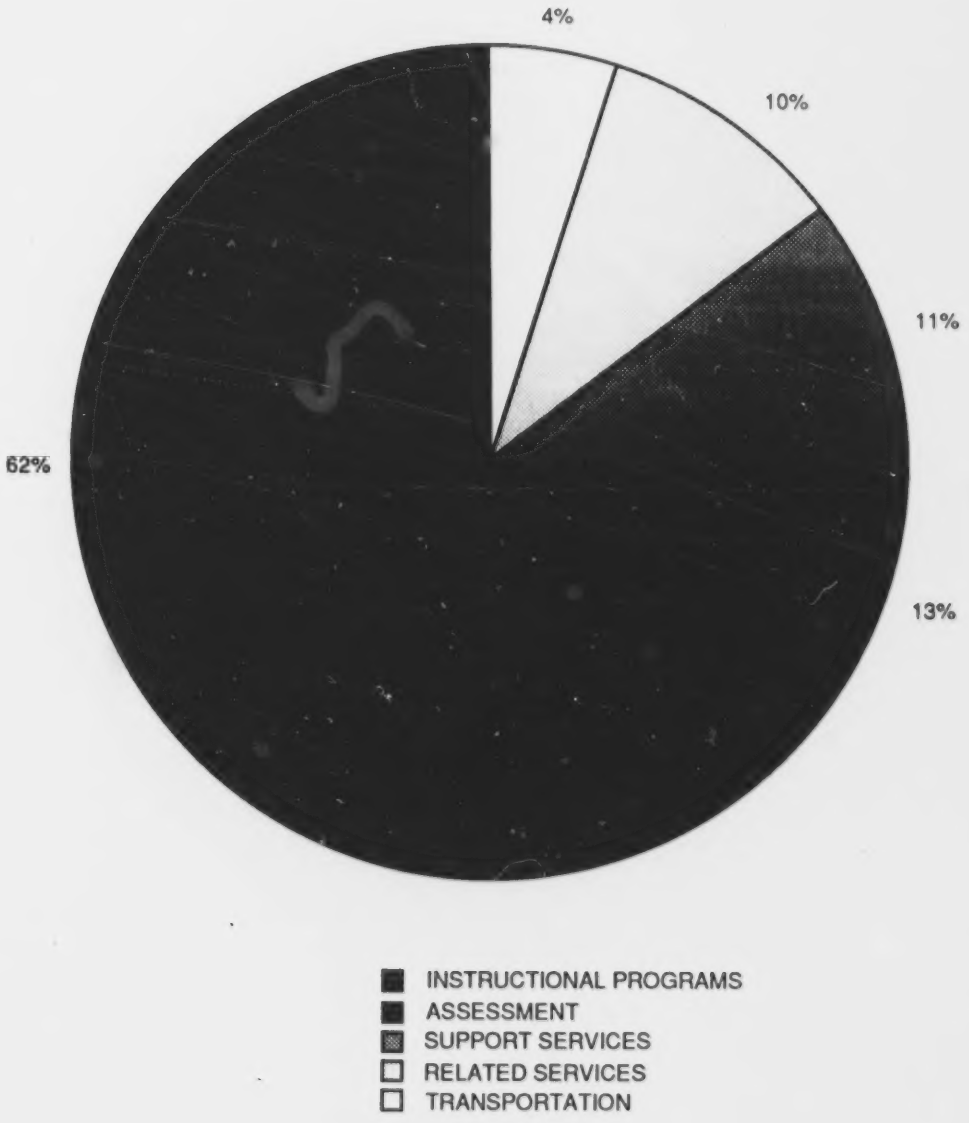
[31]Instructional program expenditures include expenditures from all types of special education programs (e.g., preschool, resource, self-contained) as well as special vocational programs and adaptive physical education. The interquartile ranges for each component of special education cost per pupil are: instruction (55-72 percent); related services (7-12 percent); and support services (6-14 percent). These ranges indicate the percentages between which half of the districts contributing to the national average fall. Twenty-five percent of the districts contributing to the average had percentages higher than this interquartile range, and another 25 percent had lower percentages.

FIGURE 3.1

Distribution Of Special Education Expenditures By Major Component



SOURCE: Expenditures Survey

for 10 percent of all special education expenditures. Special transportation expenditures comprise 4 percent of the total.

The 11 percent of the total cost per child for special education attributable to support services can be further divided into three categories. These include administrative expenditures (7 percent of total cost per pupil), other support, which includes space, construction, energy, travel and maintenance (3 percent of total cost), and instructional support, which includes salaries for personnel such as substitute teachers and librarians who are not included in the direct service delivery estimate (1 percent of total cost).

Providers' Percentage of Special Education Expenditures

In addition to asking what components account for special education costs, it is also relevant to ask which providers contribute the major share of expenditures. Most special education expenditures (75 percent) purchase programs provided directly by school districts (Figure 3.2). Based on the data in Chapter 2, which showed that 83 percent of students with handicapping conditions are served in the district rather than by other providers, we would expect this outcome.

Cooperative agencies account for the second largest share of special education cost, 13 percent, which closely matches the 12 percent of special education students that they serve. The interquartile range for expenditures through cooperatives is 0 to 15 percent, with the 0 percent indicating that many districts do not utilize these arrangements. Private schools, other external assignments, and purchased services together account for 12 percent of special education expenditures.[32] The latter three providers, it should be noted, account for less than 5 percent of students in special

[32]The interquartile range for districts' share of the average per-pupil cost of special education is 68 to 92 percent. The interquartile range for other state and local agencies is 1 to 7 percent; for purchased services it is 1 to 8 percent, and for private schools the interquartile range is 0 to 5 percent.

FIGURE 3.2

Distribution Of Special Education Expenditures By Provider

SOURCE: Expenditures Survey

education placements. This suggests that per-pupil expenditures are likely to be higher for students served by those providers, a point that will be addressed in greater detail later in this chapter.

Because providers differ in the types of students they serve and the mix of services they deliver, it is not surprising that differences emerge with respect to the distribution of expenditures within categories of providers. Table 3.2 combines the analyses of expenditures by major components and providers and presents the percentage of expenditures for each component by provider. Between three-fifths and three-fourths of special education expenditures within districts and cooperatives pay for instructional programs, with the larger proportion spent in cooperatives. The expenditures of districts and cooperatives differ more markedly in the areas of related services and assessment. Districts account for most of the assessment expenditures for students; in contrast, cooperatives devote a comparatively large share of their expenditures to related services. In addition, the percentage of expenditures for support services is higher in districts than in cooperatives, 10 percent and 4 percent, respectively.

Purchased services comprise an interesting mix of expenditures, indicating that districts rely on these arrangements to obtain specific supplemental services which may not be directly available in the district or cooperative, or which may be cost-effective to handle through external vendors. A very small fraction (about one-sixth) of purchased expenditures is for instruction. Most of the balance of purchases provide specific related services, or special transportation services. Although this distribution of expenditures is quite different from that in districts or cooperatives, it is worth noting again that purchased services account for only 4 percent of all special education expenditures.

TABLE 3.2

Percentage of Special Education Expenditures
for Major Components by Provider[a/]

Component	Provider		
	District	Cooperative	Purchased
Instructional Programs	61%	75%	17%
Related Services	9	15	45
Assessment	16	6	<1
Transportation	3	<1	37
Support Services	10	4	NA

a/ Neither private schools nor other state or local agencies are included because only per pupil tuition information was obtained from these providers. All tuition costs were classified as instructional program costs.

Given the dominant role of districts in special education, it is illuminating to explore which kinds of resources within districts absorb these district expenditures. Table 3.3 presents the percentages of instructional expenditures within districts for types of programs and supplemental services that are directed toward teachers, aides, other instructional or professional staff (e.g., physical therapists, counselors), and non-personnel expenditures (e.g., equipment, materials). Salaries and benefits for teachers, aides, and other personnel such as counselors and physical therapists account for nearly all of the instructional program and supplemental services expenditures within districts. Across all types of programs and supplemental services, 71 percent of instructional expenditures support teachers' salaries and benefits.

Looking only at instructional programs, the level of support for teachers ranges from 69 percent of the program expenditures in preschool programs to 86 percent in home/hospital programs. Aides' salaries and benefits account for between 6 percent in home/hospital programs and 23 percent in preschool programs. Expenditures for other professionals range from almost zero in self-contained programs to 15 percent in resource programs. Non-personnel expenditures account for a very small percentage of expenditures (between 2 and 5 percent) across programs.

In short, while fluctuations occur, expenditures within instructional programs are quite similar with a major emphasis on teachers and aides. For supplemental services, the pattern of expenditures for personnel is strikingly different. Only 31 percent of expenditures goes to teachers and just 2 percent goes to aides; most (57 percent) is spent on other practitioners or professional personnel. Non-personnel items such as equipment also appear as more prominent expenses within supplemental services.

VARIATIONS ACROSS TYPES OF PROGRAMS AND SERVICES

Chapter 2 indicated substantial differences in caseloads and class sizes as well as in average hours per week among types of instructional programs and supplemental

TABLE 3.3

Distribution of Instructional Program
Expenditures Within Districts by Program

	Expenditure				
Program Type	Teachers	Aides	Other Practitioners/ Professionals	Non-Personnel	Total
Preschool	69%	23%	4%	4%	100%
Self-Contained	80	17	<1	2	100
Resource Program	76	7	15	2	100
Home/Hospital	86	6	3	5	100
Supplemental Services	31	2	57	10	100
Overall	71	10	17	2	100

services. Those differences produce substantial variation in the average per-pupil expenditures of different types of special education programs. Table 3.4 indicates that average per-pupil expenditures among the five primary instructional programs range from $1,325 for resource programs to $28,324 for residential programs. The expenditures for each program also vary from district to district. For example, the interquartile range for preschool expenditures is $2,453 to $4,548, and the interquartile range for self-contained programs is $3,393 to $4,970.[33]

In general, average per-pupil expenditures vary across these program types in relation to the proportion of time students with handicapping conditions receive special assistance and in relation to the ratio of instructional personnel to students. Resource programs are typically provided for about six hours a week, or a little more than an hour per day, and the average caseload is 26. Self-contained programs generally occupy a larger proportion of students' school day, some lasting up to the full school day. Nationwide, about 15 percent of students in these programs spend no time in the regular education program, and the remaining 85 percent spend an average of 28 percent of their time in regular education. The average class size for self-contained programs is 9. Residential programs, which provide full or nearly full-time care, are the most expensive programs.[34]

Preschool program expenditures amount to $3,437 per child. Although data presented in the previous chapter suggested that classes for infants and toddlers have larger numbers of students and last for fewer hours than classes for 3 to 5 year-olds,

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[33]Interquartile ranges are presented along with standard errors in Appendix C for each of the estimates in Table 3.4.

[34]The average per-pupil expenditure for residential programs should be considered an average per-pupil *tuition*; these amounts reflect the educational as well as the residential costs involved in these placements.

TABLE 3.4

Average Per-Pupil Expenditure for
Programs and Supplemental Services

Program Type	National Average Per-Pupil Expenditure
Instructional Programs	
Preschool	$3,437
Self-Contained	4,233
Resource Program	1,325
Home/Hospital	3,117
Residential	28,324
Supplemental Services	
Special Vocational	1,444
Related Services	592
Adaptive Physical Education	615
Assessment	1,206
Transportation	1,583

the average per-pupil expenditures do not differ significantly between programs for these two age groups--infant/toddler programs cost $3,461 per child while early childhood programs cost $3,798. The similarity in these per-pupil estimates may result from additional travel costs involved in the home-based infant/toddler programs. Moreover, districts offering infant/toddler programs may exhibit higher per-pupil costs in general, possibly due to higher salaries, thereby raising the average per-pupil costs for infant/toddler programs higher than might be expected.

Table 3.4 also provides average per-pupil expenditures for supplemental services (special vocational services, adaptive physical education, special transportation, assessment, and other related services). Although a number of students classified as handicapped receive more than one related service, it is possible to calculate an average expenditure for related services per unit of service provided by dividing the amount spent for related services by the duplicated special education enrollment. This results in an average expenditure for one related service of $592. Later in this chapter we present expenditures for specific related services which are more meaningful than this collapsed value when estimating costs for students who require specific related services.

Previously we observed that special transportation and assessment contribute a noticeable share of the total expenditure per student for special education. Not surprisingly, the average expenditure per child for these services is relatively large compared to the average cost of related services. The average per-pupil expenditure for special transportation services is $1,583 (for the approximately 30 percent of special education students who receive that service). Special transportation should be distinguished carefully from regular transportation services. Special transportation typically includes modified equipment, drivers, attendants, and supplies utilized only by special education students; regular transportation, even when used by special education

students, is not considered special transportation. The interquartile range for special transportation is $942 to $1,835.

As defined in this study, assessment includes initial screening and evaluation activities, re-evaluation, referrals, preparation of individual education plans, annual IEP reviews and similar activities. These services annually reach about 6 percent of all students, both special and regular. The average per-pupil expenditure is $1,206 for assessment. About 93 percent of these assessment costs are for personnel. In turn, about half of these personnel costs goes for professionals such as school psychologists and the other half goes for teachers; the expenditure for teachers is divided fairly evenly between special education teachers and regular education teachers. Many of these teachers are involved in the referral and IEP development and review phases of the assessment process. The interquartile range of district expenditures for assessment is relatively large, from $553 to $1,427.[35]

The school-based or itinerant design of resource programs and various supplemental services does not appear to affect expenditures dramatically. Even though itinerant resource programs entail travel costs, as a group they are slightly less expensive per student than their school-based counterparts. This is partially attributable to the greater likelihood that itinerant resource programs serve speech and language impaired students and thus are less expensive resource programs than those serving learning disabled students. For supplemental services, expenditures for those that were school-based and those that were provided on an itinerant basis were roughly the same.

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[35]One major factor that contributes to this variability is some district respondents' inability to estimate accurately the contributions of regular teacher time. The hours of regular teachers' time devoted to assessment differed dramatically across some districts.

VARIATIONS IN EXPENDITURES ACROSS PROVIDERS

Table 3.5 demonstrates that reliance on different providers affects the average per-pupil costs of instructional programs although the magnitude of the effect and the direction vary.[36] For example, among resource programs, average per-pupil expenditures range from $1,356 for programs provided directly by the district to $2,398 for programs provided by other state or local agencies.[37] Ranges across other providers are more dramatic: for instance, self-contained classroom programs range from $3,680 within districts to $9,267 when provided in private schools. But preschool programs provided by cooperatives are somewhat less expensive than those provided directly by districts. In general, programs provided by districts or by cooperative agencies appear to have lower average per-pupil expenditures than programs provided by private schools or by state or local agencies; however, these comparisons are not completely appropriate because for these providers a total tuition cost is represented which is likely to include related and support services not present in the program expenditures for districts and cooperatives.

Providers other than districts--cooperatives, private schools, purchased services, and other state and local agencies--in several instances are more costly providers because of whom they serve and the intensity of services required by the consumers of their programs. Private schools provide an example of how the nature of the

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[36]Estimates based on less than five districts are not displayed in this table; all districts reporting a particular program or service were included, however, when the averages across providers were computed and presented in Table 3.4.

[37]Per-pupil expenditures for specific programs also vary even when only a single provider is considered; for example, per-pupil expenditures for self-contained programs for mentally retarded students vary substantially from district to district. Each of the estimates presented in the chapter's tables describing average per-pupil expenditures by provider and program is subject to substantial within-cell variation, as can be seen by noting the sizes of the standard errors for these estimates, which are presented in Appendix C.

TABLE 3.5

Average Per-Pupil Expenditures for Types of Special Education Programs by Provider

Program Type	Provider				
	District	Co-op	Private School	Other State or Local Agencies	Purchased
Preschool	$3,611	$3,063	*	$4,964	*
Self-Contained	3,680	6,112	$9,267	5,708	NA
Resource Program	1,356	1,605	NA	2,398	$1,689
Home/Hospital	3,996	*	*	*	2,052
Residential	NA	NA	31,616	28,304	NA

* Too few cases for statistical significance.

handicaps of students served by a provider are particularly significant with respect to per-student expenditures. Chapter 2 reported that about 1 percent of children with handicapping conditions are served in private schools, and these children tend to have relatively low prevalence handicapping conditions such as autism, deafness, or multiple handicaps. These conditions are usually linked with fairly intensive instructional efforts with low teacher/pupil ratios. District expenditures per student for self-contained classes are much lower than those of private schools but districts usually serve students with less severe disabilities. Importantly, Table 3.5 indicates that private providers' average per-pupil expenditures do not differ greatly from those of other state or local agencies or cooperatives especially when the standard errors (presented in Appendix C) are taken into account.

Another perspective important to the consideration of the costs of private special education providers is the relative costs of day programs versus full-time residential programs. Day programs do not provide full-time custodial care along with their instructional services, and their average per-pupil expenditure is $9,141.[38] The average per-pupil expenditure for residential programs, on the other hand, is $31,616--more than three times as large. One-quarter of the special education enrollment served by private schools is enrolled in those very high cost residential programs, while three-quarters of private special education students attend the lower cost day programs.

Per-pupil expenditures for special education supplementary services are presented by provider in Table 3.6. Adaptive physical education is rarely provided outside districts or cooperatives, and the average per-pupil expenditures are about equal in the

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[38]Private day programs, as considered here, include all programs but those that are residential: preschool, self-contained, and special vocational programs included in the private column in Tables 3.5 and 3.6. Specific expenditures for these programs are displayed in Appendix C.

TABLE 3.6

Average Per-Pupil Expenditures for Special Education Supplementary Services by Provider

Supplemental Service Type	Provider				
	District	Co-op	Private School	State or Local Agency[a/]	Purchased
Special Vocational	$1,150	$1,865	*	$1,381	$2,012
Adaptive Physical Education	616	667	*	*	*
Assessment	1,273	978	NA	NA	NA
Transportation	1,688	1,463	NA	NA	1,429
Related Services (all)	554	673	*	1,099	1,092
Occupational Therapy	990	772	NA	1,272	920
Physical Therapy	1,003	1,055	NA	*	1,077
Speech/Language Pathology	641	749	*	*	*
Psychological Services	870	*	NA	*	802
School Health Services	298	*	NA	*	227
Social Work Services	846	687	NA	*	*
Guidance and Counseling Services	517	719	*	*	NA

a/ These expenditures are attributable to other local agencies providing specific supplemental services for special education students enrolled in a sampled district. These students' primary instructional programs were provided by the district in which the student resided.

* Too few cases for statistical significance.

two providers. Assessment services are infrequently provided by organizations outside the district or cooperative and more assessment activities occur within the district. The difference in per-student expenditures for assessment is not noteworthy once standard errors are taken into account. Although special transportation services are often provided under purchased service arrangements, their per-pupil expenditure levels do not differ significantly when purchased or when they are provided by districts or cooperative agencies.

Although per-pupil expenditures vary substantially across specific related services, by and large there are few differences in per-pupil expenditures when different providers offer the same service. For most related services, the per-pupil expenditures are inversely associated with the sizes of the average caseloads for those services. That is, the larger the caseload, the lower the per-pupil expenditure. For example, school health services have an average caseload of 99 children, which is the largest among those services listed, and the lowest per-pupil expenditure in districts ($298). Physical therapy, with a caseload average of about 51 (about half of that for school health services) has an average per-pupil expenditure of $1,003.

But caseloads are not the only factors important to explaining differences in the costs of related services. Speech/language pathology services have an almost identical caseload to physical therapy (52 compared to 51), but the expenditure per student for physical therapy is almost 1.6 times that of speech/language pathology. The explanation for the higher expenditure level associated with physical therapy is the reliance on aides as well as professionals to provide services. In contrast, speech/language pathology generally is not staffed by both professionals and aides.

VARIATIONS IN EXPENDITURES ACROSS HANDICAPPING CONDITIONS

The handicapping conditions of students provide another perspective from which to compare the variability of special education expenditures per student. Historically, these comparisons have often clouded, rather than illuminated the picture because they have obscured the cost differences that exist within disability categories. However, it is instructive to explore the variability in expenditures by handicapping condition because of the important influence different types of impairments have on per-pupil expenditures.

One striking pattern in Table 3.7, which contrasts the average expenditures per student for different types of programs serving pupils with specific handicapping conditions, is the tendency for programs serving pupils with the more prevalent handicapping conditions (for example, learning disabilities, mental retardation, and speech impairments) to cost less regardless of program type than programs serving less prevalent conditions (for example, orthopedically impaired, multihandicapped, and autistic). At least two phenomena explain this pattern. First, as shown in Chapter 2, students in the more prevalent disability categories tend to be served in less intensive instructional settings where caseloads or pupil-teacher ratios are higher than those for students with less prevalent impairments. For example, resource programs for students with speech impairments have an average caseload of 50 students per full-time professional, while resource programs for youth who have hearing impairments operate with average caseloads of 12.

Self-contained programs for students with speech impairments constitute a major exception to the pattern of lower expenditures for high prevalence handicapping conditions. An examination of the data indicates that these self-contained programs serve only a very small proportion of students with speech impairments. Thus, in this

TABLE 3.7

Average Per-Pupil Expenditures for Special Education Programs, by Individual Handicapping Condition and Program Type

Handicapping Condition	Program Type		
	Preschool	Self-Contained	Resource
Speech Impaired	$3,062	$7,140	$647
Mentally Retarded	3,983	4,754	2,290
Orthopedically Impaired	4,702	5,248	3,999
Multihandicapped	5,400	6,674	NA
Learning Disabled	3,708	3,083	1,643
Seriously Emotionally Disturbed	4,297	4,857	2,620
Deaf	5,771	7,988	NA
Deaf-Blind	NA	20,416	NA
Hard of Hearing	4,583	6,058	3,372
Other Health Impaired	3,243	4,782	NA
Autistic	6,265	7,582	NA
Visually Impaired	4,068	6,181	3,395
Non-Categorical	3,686	3,684	1,731

instance, it would be inappropriate to regard this population of students as having a high prevalence handicapping condition.

Second, economies of scale influence the average instructional expenditures for pupils with different handicapping conditions. Economies of scale come in to play when the numbers of students served approach the maximum desirable caseloads or class sizes for specific programs and services.[39] The likelihood of achieving these economies of scale is greater for student populations with relatively common handicapping conditions, simply because of the larger numbers of such children. For students with low prevalence handicapping conditions, the staffing and purchasing economies associated with operating programs at peak resource efficiency are less likely to occur.

Largely to counteract the inefficiencies stemming from the low prevalence of certain handicapping conditions, districts use cooperatives and other external providers. By drawing students from across district boundaries, these agencies are able to increase the pool of students with similar handicaps so as to operate more cost efficient programs than if these students received services directly from the district in which they reside. Consequently, one would expect similar types of programs for specific handicapping conditions not to vary significantly when districts use cooperatives.

Tables 3.8 and 3.9 largely support this expectation. These tables compare per-pupil expenditures when self-contained programs and resource programs[40] for various

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[39]Program resources are most efficient when the placement of one additional student needing special instruction would require the addition of another special education teacher to operate within state and district determined maximum class size levels.

[40]Resource room programs are not commonly provided by organizations other than districts or cooperatives. Further, lower prevalence handicapping conditions are dealt with infrequently in resource rooms. For these reasons, far fewer program/provider combinations are available for Table 3.9 compared to the self-contained results in Table 3.8, even though more children are served in resource programs than in self-contained classes.

TABLE 3.8

Average Per-Pupil Expenditures in Self-Contained Programs for Selected Handicapping Conditions by Provider[a/]

Handicapping Condition	Provider			
	District	Co-op	Private School	State or Local Agency
Learning Disabled	$3,101	$2,985	$8,107	*
Speech Impaired	5,033	*	*	*
Mentally Retarded	3,993	5,703	9,091	$4,083
Seriously Emotionally Disturbed	4,567	5,420	6,359	6,813
Orthopedically Impaired	4,844	5,924	*	*
Multihandicapped	7,341	7,467	7,973	4,843
Deaf	5,915	8,690	*	5,077
Hard of Hearing	4,652	*	*	5,901
Autistic	7,447	*	*	*
Visually Impaired	5,486	*	*	*

a/ Purchased Services was not included because of the small number of cases.

* Too few cases for statistical significance.

TABLE 3.9

Average Per-Pupil Expenditures in Resource Programs Provided by Districts or Co-operative Arrangements for Selected Handicapping Conditions[a/]

Handicapping Condition	Provider	
	District	Co-op
Learning Disabled	$1,677	*
Speech Impaired	658	$719
Mentally Retarded	2,322	*
Seriously Emotionally Disturbed	2,715	*
Hard of Hearing	3,524	2,867
Visually Impaired	3,594	3,586
Orthopedically Impaired	*	*
Non-Categorical	1,842	*

a/ Insufficient cases are available to include private school, state or local agencies, or purchased services. Additionally, too few cases resulted to report expenditures for orthopedically-impaired and non-categorical resource programs when these were divided across the providers listed.

* Too few cases for statistical significance.

handicapping conditions are offered by different providers. Excluding for a moment private schools and other state or local agencies expenditures, in both tables the range of expenditures across providers (the rows) generally is less than the range across handicapping conditions (the columns). The different pupil/teacher ratios and caseloads associated with programs for specific handicapping conditions lead to the larger variation in expenditures across handicapping conditions, while the economies of scale achieved through cooperatives diminishes expenditure differences among programs serving the same handicapping condition.

These observations exclude expenditures for self-contained programs in private schools and other state or local agencies. The per-child expenditures for pupils served by these providers do not vary as widely across handicapping conditions as do programs provided by districts or cooperatives. Moreover, except for self-contained programs for seriously emotionally disturbed pupils, private school expenditures noticeably exceed those of other state and local agencies. We suspect that private providers in these instances may be serving students who differ distinctly in the severity or complexity of their handicaps. Furthermore, readers must remember that expenditures for these providers are not completely comparable because they are based on tuition costs which are likely to include related services and support services that are excluded from the district and cooperative expenditures.

These comparisons across programs and providers demonstrate that the specific handicapping condition served by an instructional program is an important factor associated with variation in per-pupil expenditures. However, it is not handicapping condition, per se, that is influential; rather, it is the relative intensity of the instructional services required by students with more or less prevalent handicapping conditions that is important. With less prevalent, which often means more severe, handicapping conditions, per-pupil expenditures tend to increase. As the prevalence of

the handicapping condition decreases, the more likely it is for different providers to step in as a means of capturing efficiency and mitigating lost economies of scale. While costs are influenced by a range of factors--differences in types of personnel, special equipment, and other resources--beyond caseloads and pupil-teacher ratios, ultimately, the severity of a student's disability is the underlying theme explaining much of the variation in special education program expenditures. For this reason, readers should refrain from comparing the costs of different types of programs as if the students they serve are similarly impaired when, in fact, there is a high likelihood that they differ even when they share the same disability label.

EXPENDITURE VARIATIONS RELATED TO DISTRICT CHARACTERISTICS

Chapters 1 and 2 reported few observable differences among special education enrollments or programs associated with district size, urbanicity, region, or wealth. The only differences involved large, urban districts serving a greater proportion of handicapped students in self-contained programs, and a greater tendency in districts that were small, rural, or suburban to serve students through cooperatives. Whether these differences and others related to districts' characteristics translate into differences in per-pupil expenditures is the question we now address.

District wealth, as measured by the median family income level, appears largely unrelated to per-pupil expenditures (Table 3.10).[41] In general the wealthiest one-third of districts do not spend more per pupil; in fact, poorer districts appear to have somewhat higher expenditures per pupil.

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[41]District wealth estimates are based on 1980 median family income data from the Bureau of the Census. Districts in the sample were rank-ordered and divided into thirds on the basis of this measure. Low wealth districts equate with the bottom third of all districts in the nation ranked on the basis of 1980 median family income, high wealth districts encompass the top third.

TABLE 3.10

Average Per-Pupil Expenditures for Selected Programs and Supplemental Services by Income Level of School District[a/]

Program Type	Income Level		
	Lower One-third	Middle One-third	Upper One-third
Instructional Programs			
Preschool	$4,806	$2,994	$2,904
Self-Contained	4,024	4,022	4,953
Resource Program	1,291	1,078	1,545
Supplemental Services			
Vocational Programs	2,981	1,546	1,115
Related Services	576	594	789
Assessment	1,161	1,008	1,051
Transportation	1,700	1,556	1,232
Adaptive Physical Education	1,254	394	646

a/ Income level is based on 1980 U.S. Census data on median family incomes for school districts in the Summary Tape File 3F as rank-ordered and divided into three equal groups.

Table 3.11 indicates little systematic relationship between district size and average per-pupil expenditures for special education. To press further, we analyzed the largest districts in our sample as a separate group. These select districts, despite ranging in enrollment from over 93,000 to nearly 600,000, also did not demonstrate significantly larger per-pupil expenditures than other districts.

None of the average per-pupil expenditure differences by metropolitan status of the district is statistically significant, but several are suggestive (Table 3.12). In particular, average per-pupil expenditures in center cities are not markedly higher than in other districts for any of the programs and services considered, but expenditures appear higher for self-contained programs in rural districts and average per-pupil expenditures for transportation services appear to be lower. The transportation results contradicted usual expectations that rural expenditures would exceed those of other areas. Detailed case-by-case examination suggested the lower transportation charges in rural areas stemmed from much lower personnel costs compared to urban areas, while costs of equipment and supplies were roughly equivalent.

In general, no single demographic characteristic examined demonstrates clear enough differences in average per-pupil expenditures to justify statements that one type of district generates more statistically significant differences in per-pupil expenditures for special education than another.[42] Nevertheless, there are noticeable relationships between average per-pupil expenditures and district characteristics for specific programs and services.

When none of the demographic characteristics appeared consistently related to average per-pupil expenditures, we examined the district data on a case-by-case basis. That examination suggested that, although districts with large enrollments did not

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[42]The small size of the sample once subdivided limits most measures of statistical significance.

TABLE 3.11

Average Per-Pupil Expenditures for Selected Programs and Supplemental Services by District Size[a/]

Program Type	District Size		
	Small	Medium	Large
Instructional Programs			
Preschool	$3,353	$2,795	$3,168
Self-Contained	4,613	4,695	3,306
Resource Program	1,322	1,271	1,968
Supplemental Services			
Vocational Programs	1,282	2,395	2,065
Related Services	701	660	449
Assessment	1,244	1,075	857
Transportation	1,290	1,596	1,887
Adaptive Physical Education	495	1,218	505

a/ District size was defined by dividing the weighted sample of districts into thirds, resulting the following categories:

Small = 2,745 students or fewer
Medium = between 2,745 and 9,567 students
Large = 9,568 students or more

TABLE 3.12

Average Per-Pupil Expenditures for Selected Programs and Supplemental Services by MSA of School District

Program Type	MSA		
	Rural	Suburban	Center City
Instructional Programs			
Preschool	$2,861	$3,363	$3,495
Self-Contained	5,258	3,975	3,445
Resource Program	1,383	1,247	1,588
Supplemental Services			
Vocational Programs	1,162	1,865	2,050
Related Services	737	668	396
Assessment	924	1,198	970
Transportation	1,096	1,534	1,854
Adaptive Physical Education	261	1,206	506

necessarily have high average per-pupil expenditures, the districts that did have high per-pupil expenditures tended to be large. Similar patterns appeared to be present among center city districts as well as districts with high median family incomes: that is, districts with higher per-pupil expenditures appeared to fall into those categories even though those categories also contained districts with low or moderate levels of expenditures.

Multiple regression analysis supported this case-by-case investigation. Center city status, median family income, and total enrollment combined to explain 35 percent of the variation in per-pupil expenditures. Furthermore, among the three variables, center city status was most closely related to higher per-pupil expenditures for special education. These preliminary multivariate analyses of the Expenditures Survey data suggest that more powerful analytic models may yield more definitive explanations for the variation in special education expenditures among districts.

CHAPTER 4

REGULAR AND SPECIAL EDUCATION EXPENDITURES

How much does it cost overall to educate a child with disabilities? This chapter examines this question by placing expenditures for special education within the larger context of regular elementary and secondary education expenditures. This focus provides a complete picture of the total costs of educating children with handicapping conditions and not simply students' special education costs which was the theme of Chapter 3. Three major topics are addressed.

First, special education per-pupil expenditures for instruction and other major cost components are compared with expenditures for similar components within the regular education program. The second topic addresses the relationship between special and regular education expenditures for students with handicapping conditions, focusing on the concept of excess cost and the calculation of cost ratios. The final topic centers on profiles of total expenditures for programs and services provided to hypothetical children with selected handicapping conditions. These profiles provide comparisons of the costs of alternative instructional strategies for individual children and serve as a guide for readers to use in constructing national-level cost estimates for specific types of pupils based on where the children receive services and what kinds of related services they require.

OVERVIEW OF EXPENDITURES FOR REGULAR AND SPECIAL EDUCATION

Special education takes place within the larger context of public elementary and secondary education for all children and youth. Based on data from the Expenditures Survey, an estimated $132 billion was spent in total on elementary and secondary

education in 1985-86.[43] Eighty-four percent of this total, or $111 billion, was spent on regular education programs and services while approximately 12 percent was spent on special education. The remaining 4 percent of all dollars spent was attributable to other special district programs such as compensatory and bilingual education.

The nationwide average per-pupil expenditure for regular education during 1985-86 amounted to $2,780, with the majority spent on instructional programs.[44] Figure 4.1 indicates the distribution of regular education expenditures among major cost components. Comparing the distribution of expenditures in this figure with the distribution of special education expenditures described in the previous chapter (see Figure 3.1) indicates several differences between the way regular and special education dollars are spent. A much greater percentage of special education expenditures goes toward instructional programs and supplemental services than is the case for regular educational programs and pupil services (72 percent for special education to 57 percent for regular education). Support services account for a much larger percentage of regular education expenditures than of special education expenditures (35 percent for regular education and 11 percent for special education). The regular education support

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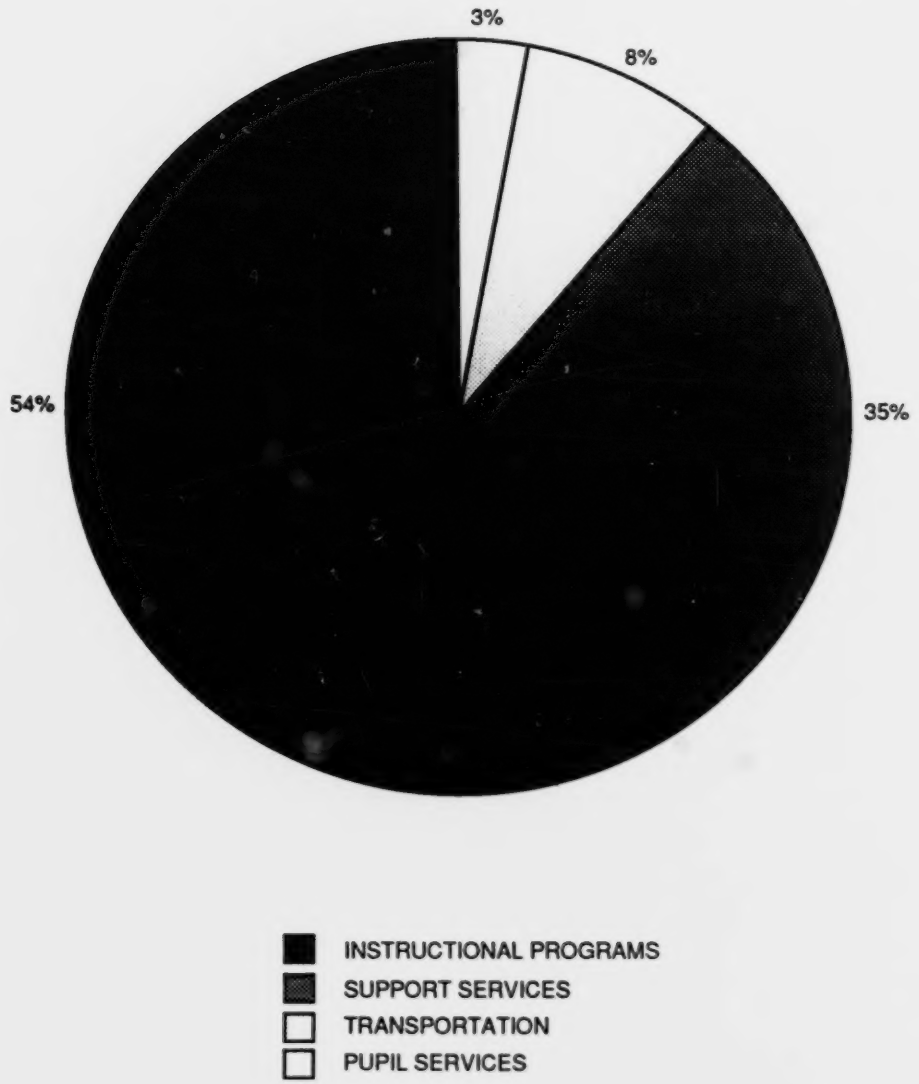
[43]The Expenditures Survey estimate of expenditures differs in two significant ways from traditional published expenditure totals. First, capital costs are based on an amortization of the replacement cost for school buildings instead of current debt service payments. Second, equipment costs are similarly based on an amortized cost for all equipment available in a program, not merely the current year expenditure for capital equipment. Other estimates contain food service and summer school expenditures which these reported data do not. The average expenditure per pupil (all expenditures combined including those for special education) calculated from the Expenditures Survey data amounts to approximately $3,395 per student. This amount is similar to the $3,468 per average daily membership spent in school year 1985-86, as compiled by the National Center for Education Statistics from state-reported information (NCES, 1988).

[44]This amount represents only expenditures for the regular education program and does not include expenditures for special education programs, compensatory education, bilingual education, or any other special programs. Regular education encompasses both academic instruction in reading, mathematics and science, as well as supplemental instruction in music, art, physical education, drama, band, and the like.

FIGURE 4.1

Distribution Of Regular Education Expenditures By Major Component



SOURCE: Expenditures Survey

services category includes district and school-level instructional support (for example, curriculum departments, subject matter specialists, substitute teachers, and inservice training), administration (for example, district superintendents, principals, personnel departments, and secretaries), and other support (for example, construction costs, maintenance, financial operations, data processing, personnel, and energy). The large difference between regular and special education support services occurs primarily in this last subcomponent of expenditures. For regular education, "other support" comprises 22 percent of total expenditures per pupil, while for special education it constitutes only 3 percent of expenditures.[45] It should be noted, however, that many of the regular education dollars spent for support services also benefit children served with handicapping conditions who attend school in the district.

Although regular education appears to spend a greater percentage for transportation and support services functions, the differences are not statistically significant. Assessment expenditures, which account for 13 percent of all special education expenditures, do not have a parallel component within regular education.[46]

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[45]Within the category of support services, regular education instructional support comprises 3 percent of total expenditures and regular education administration comprises 10 percent of the total. Comparable percentages for special education are 1 and 7 percent, respectively.

[46]Assessment was included only as a special education expenditure component because we defined its purpose as to screen and evaluate students for special education. Some students who are assessed, however, are found to have no handicapping condition and remain full-time in regular education. If assessment is removed from the special education distribution, the comparable percentages for the remaining special education components would be: instructional programs (70 percent); transportation (5 percent); support services (12 percent); and related services (15 percent).

THE RELATIONSHIP BETWEEN SPECIAL AND REGULAR EDUCATION EXPENDITURES

Excess Costs

A major interest of policymakers centers on the relationship between special and regular education expenditures and, in particular, identifying the incremental expenditures for pupils with disabilities that exceed expenditures for students in regular education. Over the years policymakers have come to call this relationship excess cost.

Excess cost provisions are found in the federal EHA-B funding formula and form the basis for special education funding in several states. In states with excess cost funding formulae, state funds are distributed to each district based on a percentage of the district's excess costs, subject to ceilings and other adjustments.

The concept of excess cost, as applied to special education, is defined differently across states and among federal education statutes and regulations. Excess cost is often used interchangeably with the terms supplemental, additive, or replacement. The considerable variation in definition and interpretation of these terms generates a large amount of confusion. We define excess cost as the total costs required to educate a special education student minus the costs to educate a regular education student.

This definition is analogous to the added cost concept previously used by the Rand Corporation (Kakalik et al., 1981). In that study all educational expenditures on behalf of a special education student, including those associated with special and regular education instruction and support services, were calculated. The added cost of special education was computed as the difference between the total educational expenditures per handicapped pupil and the regular education student expenditures per pupil for all students participating in regular education.

Hartman (1988) offers an alternative approach to the calculation of excess cost. Hartman suggests defining excess costs in terms of programs and services, "rather than an expenditure difference between special and basic education per student costs." In

his conceptualization, Hartman introduces two ways to categorize special education programs. First, *supplemental* programs are those programs and services that are in addition to regular education programs; second, *replacement* programs are those programs and services that take the place of regular education programs. The costs of supplemental programs are considered completely excess because the pupils also receive the regular education program. The excess cost of replacement programs, however, is the difference between the special education program costs and the costs of regular programs which they replace. Regardless of definitional differences, however, almost all excess cost computations are complicated by the fact that a large majority of special education students receive a portion of their instruction from the regular education program, while a small fraction of the total number spend all their time in a special education setting.[47] Consequently, because regular education constitutes a significant component of the education of most children with handicapping conditions, it is important to take into account in computing educational expense.

Our conceptualization of excess costs requires, first, calculating the *total* average per-pupil cost of education (special and regular) for students with specific handicapping conditions and, second, subtracting the total average per-pupil cost of educating students who do not have handicaps. If we were to ignore the fact that some children with handicapping conditions receive only a part of the full average per-pupil cost of regular education and simply add the per-pupil regular education estimate to the per-pupil special education estimate, the regular education estimate includes more than that portion of regular education expenditures that students with handicaps use. To avoid this outcome, it is necessary to adjust the amount of regular education expense for

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[47]For example, 85 percent of the students in self-contained programs spend an average of 28 percent of their school day in regular education instructional programs, and special education students in resource programs spend an average of 80 percent of their school day in the regular instructional program.

children with handicaps based on the proportion of time these students spend in regular education.

The regular education expenditures applicable to special education students in specific types of programs, as well as the total costs of educating children with disabilities, are presented in Table 4.1. The special education and regular education expenditures allocated to special education totals were calculated for each program type based on certain assumptions and related information. Thus, we discuss the combined special and regular education expenditures for each program type separately.

Students in Resource Programs. We estimate a total per-pupil educational expenditure of $5,243 for special education students served in resource programs. Of this amount, $2,463 is directly attributable to special education. The largest single special education cost is $1,325 for the special instructional program itself, and other components including related services and assessment as well as district support services.[48] Not included under special education expenditures for resource programs are the costs of special transportation or the costs of operating separate special education schools; we have assumed that in neither case is it likely that resource program students will participate in these situations. We have assigned the full cost of regular education, $2,780, to the resource program special student. This includes $1,573 for instruction and pupil services as well as the full regular education amounts for transportation and support services. The full regular education amount was assigned because the amount of time a resource program student is not in a regular

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[48]Average per-pupil related service costs have been assigned to students in resource as well as self-contained programs. It is not possible to assign specific related services or a differential share of total related services expenditures to these program types. Consequently, we have included in each calculation except residential the basic service unit cost of total related services expenditures divided by the unduplicated special education enrollment. Residential program costs do not include an additional cost component for related services since only tuition costs were initially collected which are assumed to include whatever related services are provided.

TABLE 4.1

Average Total Per-Pupil Educational Expenditures for Special Education Pupils by Program Type

Program Type	Special Education	Regular Education[a/]	Combined Special and Regular Education
Resource Programs	$2,463	$2,780	$5,243
Self-Contained Programs	5,566	1,347	6,913
Preschool Programs	4,750	973	5,723
Residential Programs	29,108	389	29,497
All Programs	3,649	2,686	6,335

a/ Portion of regular education expenditures provided to special education students while they are being served within the regular education program.

class is too small to marginally affect the fixed costs of the resources used in that regular class. Staff, space, supplies, and equipment must be available for resource program students regardless of whether they leave the classroom for special assistance for an hour or two each day.

Students in Self-Contained Programs. Expenditures are allocated differently for self-contained programs, resulting in special education contributing about 80 percent of the combined average per-pupil expenditure of $6,913. Special education components include special instruction at $4,233 as well as related services, special transportation, assessment, and support services. The regular education contribution includes per-student expenditures for school and district-level support services and $374 of regular education instructional program cost. This amount was obtained by adjusting for the percentage of self-contained students participating in regular education and the amount of time, on average, they spend. More specifically, the instructional component of regular education ($1,573) was multiplied by .238 (.85 self-contained students times .28 hours per week in regular education).[49]

Students in Preschool Programs. For preschool programs, total expenditures amount to $5,723. Special education costs include instruction at $3,437 as well as related services, assessment, special transportation, and support services. No instructional costs from regular education were allocated; only school and district-level support services, a total of $973, were counted in the combined amount.[50]

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[49]Similar adjustments based on time spent in regular education were not made to regular education support services per-pupil expenditures. Rather, we assumed that all students in a district, handicapped or non-handicapped, received an equal share of these services. At present, empirical data to alter this assumption do not exist. In practice, however, district support services may not be equally distributed across students in various programs.

[50]In fact, only seven of the 60 districts sampled in the Expenditures Survey reported the existence of preschool programs as part of the regular education offerings of the district. All but two of these districts were located in urban districts.

Students in Residential Programs. Combined expenditures for residential programs show the smallest contribution from regular education. Only district-level support services expenditures are allocated from the regular education program to these students. On the special education side, expenditures include instruction ($28,324), assessment, and district-level support services.

Combined Educational Expenditures for Special Education Students. Across all types of programs, the combined per-pupil expenditure for education is $6,335. This amount is slightly less than the amount obtained from simply adding the national average per-pupil expenditure amounts of $3,649 for special education and $2,780 for regular education, which sum to $6,429. The difference between this sum and the sum adjusted for time spent in regular education amounts to $94. While this is not a large expense on a per-pupil basis, when total expenditures are calculated it can represent a significant difference. Table 4.2 illustrates the estimates of excess cost obtained from the application of our definition of these costs to the expenditures derived from the Expenditures Survey.

Ratios of Special Education to Regular Education Expenditures

Related to the concept of excess costs are ratios that compare total expenditures (special plus regular education) for a typical special education student to expenditures for a typical regular education student. These types of ratios have been reported since at least 1970, and have served as a yardstick for school districts to assess themselves and for states to construct funding formulas and estimate budget outlays. They are useful because they depict relationships among expenditures that can be used in subsequent years regardless of changes in actual dollar amounts.

The cost of educating a pupil with handicaps is 2.3 times the cost of educating a non-handicapped student (Table 4.3). This relationship is roughly the same regardless of whether adjustments are made to account for the amount of time students spend in

TABLE 4.2

Estimates of Excess Cost of Special Education Students

Student Placement	Per-Pupil Excess Cost[a/]
Resource Programs	$2,463
Self-Contained Programs	4,133
Preschool Programs	2,943
Residential Programs	26,717
All Programs	3,555

a/ Total costs of educating a special education student (regular plus special) minus average cost of educating a regular education student ($2,780). For example, the calculation for resource programs is $5,243 - $2,780 = $2,463.

TABLE 4.3

Ratio of Total Expenditures Per Handicapped Pupil to Total Expenditures Per Non-Handicapped Pupil

Student Placement	Ratio to Regular Education Expenditure Per Pupil[a/]
Resource Programs	1.9
Self-Contained Programs	2.5
Preschool Programs	2.1
Residential Programs	10.6
All Programs	2.3

a/ Total average education cost for a special education student (special and regular), divided by the average cost for a regular education student ($2,780).

regular and special education or whether unadjusted expenditure levels for regular and special education programs are simply combined. While it is more appropriate to compute this ratio using adjusted expenditures, because few districts have the measures at hand to allow these adjustments in program expenditures, the simpler approach may be necessary to compare state or local spending ratios with this overall national ratio.

The ratio of 2.3 to 1 shows considerable durability across the years. In 1977-78, the cost ratio calculated across all programs was 2.17 to 1 (Kakalik et al., 1981). An even earlier study by Rossmiller (1970) reported a ratio of around 2 to 1. The special education programs studied by Rossmiller, however, were primarily self-contained programs, reflecting the dominant service delivery approach used for pupils with handicapping conditions at that time. A more appropriate comparison value from the Expenditures Survey data may be the 2.5 to 1 ratio applicable to self-contained programs. However, students receiving services in self-contained programs today probably are somewhat more severely impaired than those in Rossmiller's 1970 sample of programs. Thus, such comparisons must be viewed cautiously.

These ratios, even though remarkably similar across various national studies, reflect an increase in the per-pupil cost of education for special education students relative to the regular education per-pupil cost. The 10 percent constant dollar increase in the average per-pupil expenditures from special education from 1977-78 to 1985-86, compared to a 4 percent increase for regular education, is simply another way of stating this relative increase.

The ratios presented above are national ratios, composed of estimates across several districts. The ratio applicable to a particular district may differ noticeably from the ratio at the national level. For example, the district in our sample with the highest per-pupil expenditures for special education outspends the district with the

lowest by five to one. Average per-pupil expenditures for regular education also differ across the districts sampled, with the highest about four times larger than the lowest. When the amounts for special education and regular education expenditures per pupil are combined, the ratio of total average per-pupil expenditures for special education students to expenditures for regular education students varies from about 1.5 to 1 to over 4 to 1.

The ratios for students in different special education placements range from 1.9 to 1 for resource programs to 10.6 to 1 for residential programs. In fact, these expenditure ratios for programs within special education may exhibit more variability across time. As we noted previously, Rossmiller's 1970 ratio of 2 to 1 may be more applicable to self-contained programs than to all special education programs combined. Unfortunately, because the definitions of programs vary so much across the studies--and across time--trend comparisons of ratios for specific programs are not possible.

STUDENT PROFILES

Within a single district, considerable variation can exist in the program and services provided to an individual student and the total amount spent for each student's education. These variations within districts are produced by a number of factors including the special services needed by the student; the extent to which the pupil participates in the regular education program; and the agency or entity that provides the service.

In this section, we show combined educational expenditures for illustrative individual students. These student profiles are abstractions; they are based on national average expenditures for particular types of programs and services across districts for hypothetical students. As a result, the profiles do not reflect the actual expenditures for any particular special education student in any specific district. The total expenditure for each profiled student represents the sum of adding the amount spent

on each instructional program, supplementary service, and support service assumed necessary to educate that student. For simplicity, we use the national average per-pupil expenditure to represent the cost of a program, although in practice substantial variation exists among districts.

Each profile illustrates a major contrast between factors influencing expenditures. The first set of profiles addresses the cost consequences of differences between self-contained and resource programs as well as the amount of regular instruction entailed in each assignment. No assumption is made in these profiles that students have similar degrees of impairment. Quite the contrary, in most circumstances we would expect that the pupils' impairments differ in severity by virtue of the type of placement required.

Readers are invited to use these profiles as a guide for constructing their own profiles of individual students and estimating the total cost of their education. The specific program and service costs per pupil are contained in Appendix Table C4. Readers are free to apply their own assumptions or knowledge about which supplemental or support services are appropriate in specific profiles.

Provision of Regular Education Services and Primary Program Assignment

Most special education students spend a portion of their school day participating in regular education programs within regular schools. As discussed in Chapter 2, this involvement in regular education can be the norm, for example, for speech/language impaired students whose only special education is a few hours a week with a speech/language pathologist, or for learning disabled students who receive special instruction in a resource program. Alternatively, participation in the regular program for the child with a more severe handicapping condition may take the form of only

periodic involvement, such as participating in physical education, music, or school assemblies.

In practice the cost of regular services received by a special education student depends on whether inclusion of the student in regular classes actually increases the cost of providing the regular program. This conception of cost, referred to as marginal cost, is important to the interpretation of individual student expenditures. For example, when a single speech-impaired student leaves the regular program to receive the services of a speech/language pathologist, the cost of that regular program would probably not change because class sizes and the number of teachers required would not be affected. In other words, it would cost as much to educate the speech impaired student in regular education as it would cost to educate a student who did not leave the regular classroom at all for special education services. Similarly, the presence of a handful of special students who receive most of their education in a self-contained program and who participate occasionally in a regular class probably does not generate an increase in the cost of the regular program. The involvement of numerous special students in regular education programs on a part-time basis, however, may well affect a school's or district's expenditures for the regular instructional program because the added numbers could trigger requirements to hire additional teaching staff and purchase other resources.

The conditions that trigger increases in special or regular education costs vary among school districts and even among programs within school districts. They include such factors as the minimum and maximum limits on classes or caseloads, and the manner in which districts determine the enrollments of classes. As a result, applying marginal cost notions is an extremely complicated task. In the profiles, we have tried to reflect marginal cost considerations by keeping program units in mind. That is, when the presence of a particular type of special education program (e.g., self-

contained) is likely to affect regular education expenditures within a school, we have prorated the cost of a special education student based on the average time that the student would participate in the regular program. In Profile A, for example, we multiply the average per-pupil expenditure for regular education instruction ($1,573) by the percentage of time the average self-contained learning disabled student spends in the regular classroom (35 percent), while in profile B, the full $1,573 is allocated to the resource program student because the unit cost of the regular education instruction is unaffected by short-term pullouts.

The two students profiled in Figure 4.2 provide a detailed view of the effect of regular and special education expenditures on total costs of education. The figure depicts two learning disabled students, each of whom spends a different portion of the day in regular education. One is in a self-contained program for 65 percent of the school day; the other is assigned to a resource program for 24 percent of the school day or, conversely, is in regular education 76 percent of the day, which probably does not decrease regular education instructional costs.

The total educational expenditures for students in self-contained and resource programs illustrated in Profiles A and B turn out to be more similar than may be commonly thought--$7,123 for the self-contained, learning disabled pupil and $6,720 for the resource program, learning disabled child. Although the self-contained special education instructional program by itself costs 85 percent more than the resource program, the overall difference in total expenditures shrinks to only 6 percent when regular education expenditures are included.

The Provision of Related Services

The next series of profiles shows the variety of related services provided to students, illustrating how these services can differ across handicapping conditions and

FIGURE 4.2

Profile Differences: Program Assignment

Programs Received	Expenditures	
	Profile A	Profile B
Special Instruction		
Learning Disabled:		
Self-Contained within District	$ 3,101	
Resource Program within District		$ 1,677
Other Instruction		
Regular Education Instructional Program:		
($1,573 X .35 for self-contained)	552	
($1,573 X 1.00 for resource program)		1,573
Related Services		
Speech/Language Pathology	641	641
Supplementary Instructional Services		
Assessment	1,273	1,273
Transportation		
Regular Education Transportation	234	234
Support Services		
Regular Education, School Level	584	584
Special Education, District Level	349	349
Regular Education, District Level	389	389
TOTAL EXPENDITURES	**7,123**	**6,720**

SOURCE: Expenditures Survey

how they, in turn, affect the total cost of educating specific types of students with disabilities (Figure 4.3). For example, comparing profiles C and E illustrates that mentally retarded students often receive fewer related services than multihandicapped students. The relative cost of related services based on different providers can be seen by comparing profile C, where the district is the direct provider, with Profile D, where a cooperative serves the student. From these three profile examples, it is clear that different types of related services, as well as the organization that provides them, influence total education expenditures for individual students.[51]

The need for special transportation services, instead of regular transportation services, is particularly costly. The average expenditure per pupil for special transportation services by school districts is over seven times larger than the cost of regular transportation services ($1,583 for special and $234 for regular transportation). The reasons behind this large difference are the smaller number of special education students transported on each bus, special equipment or configuration requirements for the buses, and the assistance of an aide when buses carry students with severe handicapping conditions.

Profiles C and D illustrate that the cost for the same type of related service may vary by provider, with a difference of $641 between the two profiles for psychological services provided by the district and a cooperative. Profile E further illustrates the effects of providing a number of related services. The multihandicapped child in Profile E receives occupational therapy in addition to the speech/language pathology and psychological services provided the mentally retarded students in Profiles C and D;

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[51]According to the *Tenth Annual Report to Congress* (OSEP, 1988), the most commonly provided related services were in the areas of speech/language pathology, social work, school health, counseling, and psychology. In addition, multihandicapped and orthopedically impaired students often received occupational or physical therapy; hard of hearing and deaf students often received audiological services. Transportation, adaptive physical education, and assessment are relatively common supplementary services.

FIGURE 4.3

Profile Differences: Related Services and Providers

Programs Received	Expenditures		
	Profile C	Profile D	Profile E
Special Instruction			
Self-Contained MR, District Provided	$ 3,993		
Self-Contained MR, Cooperative		$ 5,703	
Self-Contained MH, District Provided			$ 7,341
Other Instruction			
Regular Education:			
($1,573 X .22)	346		
($1,573 X 0.0)		0	
($1,573 X .15)			236
Related Services			
Speech/Language Pathology	641	749	641
Psychological Services	870	1,511	870
Occupational Therapy			990
Supplementary Instructional Services			
Assessment	1,273	978	1,273
Adaptive Physical Education			669
Transportation			
Special Education, District	1,688		1,688
Special Education, Cooperative		1,463	
Support Services (School Level)			
Regular School	584		584
Special School		202[a]	
Support Services (District Level)			
Special Education, District	349	349	349
Special Education, Cooperative		218	
Regular Education, District	389	389	389
TOTAL EXPENDITURES	**10,133**	**11,562**	**15,030**

SOURCE: Expenditures Survey

[a] This figure is the average per-pupil cost within a district of operating a special school and is used here as a proxy for a cooperative-operated special school.

that difference in related services accounts for a difference of $990 in expenditures between the students in Profiles C and E.

The last contrast illustrated in these profiles relates to expenditure differences across providers (for example, the district or an external agency). Not all school districts have the same options. For example, the largest urban school districts may have sufficient students to operate a special school for profoundly mentally retarded children within their boundaries. Smaller districts, with only one or two students with similar handicapping conditions, may need to send such students to a cooperative agency or private school.

Profiles C and D illustrate the expenditure differences between providing the program within the district or through a cooperative. Comparing the mentally retarded student in Profile C, who is provided services through the district, with the mentally retarded student in Profile D, served by a cooperative, shows a $1,429 difference, even though both are provided special education programs and supplemental services falling in the same category (for example, self-contained programs and psychological services). Most of the difference stems from the cooperative's higher special instructional cost for these specific programs ($5,703 compared to $3,993) as well as a difference in the cost of related services amounting to $749. The use of a cooperative arrangement also may add to the expenditures for district-level support services, while reducing comparable expenditures at the school level, as can be seen by comparing Profiles C and D. These relatively higher per-pupil expenditures as well as those related to instruction and related services are likely to result from cooperatives generally serving students with somewhat more severe handicaps within a given handicapping condition who receive more intense services.

CHAPTER 5

FEDERAL EHA-PART B EXPENDITURES FOR SPECIAL EDUCATION

Since 1975 federal EHA-B funds have been available to states and school districts to help support the cost of special education programs and related services required by students with handicapping conditions. The EHA-B appropriation for fiscal year 1985, which would correspond to school year 1985-86, was $1.1 billion. This amounted to a per-child allocation (as opposed to a per-child expenditure) based on the federal distribution formula of $276 (OSEP, 1988).[54]

Districts have available other sources of federal funds to draw upon in meeting the needs of children with handicaps. The most important of these are the ECIA Chapter 1 state program for state-operated schools and the Vocational Education Act-Part B set-aside for handicapped students. However, EHA-B provides by far the largest amount of federal expenditures at the local level. EHA-B funds account for 91 percent of all federal expenditures for special education and related services, while the ECIA Chapter 1 accounts for only 7 percent and the Vocational Education Act set-aside accounts for only 2 percent.

Because of the dominant role played by EHA-B in local expenditures for special education, we examine only EHA-B funds in this chapter. Consequently, whenever the

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[54]EHA-B provides funds to states annually on the basis of the number of handicapped children aged 3 through 21 reported by local education agencies as receiving special education and related services on December 1 of the previous fiscal year. States must distribute at least 75 percent of these funds to school districts and intermediate educational agencies to support the education of handicapped students. Of the remaining 25 percent of funds that states are allowed to retain, up to one-fifth--or $350,000, whichever is greater--can be used to pay state administrative expenses and up to 20 percent may be spent for direct or support services for a range of state-established priorities. This chapter reports only on local Part B expenditures; the funds that states set aside for administration and state-established priorities are not included in the Expenditures Survey unless they are distributed to local school districts or cooperatives for direct services to children.

terms federal dollars or federal expenditures appear, they refer only to EHA-B and not to other federal funds.

The statute and regulations for EHA-B establish few requirements regarding how districts must use federal funds. These requirements, though few in number, can shape the paths districts choose to follow in spending their federal funds. Districts must use EHA-B funds only to pay for the excess costs directly attributable to programs providing special education to handicapped pupils. The regulations define excess costs as those above the average regular education expenditures per enrolled pupil in a district. Districts must demonstrate that handicapped students receive a minimum amount per pupil from other sources that is equal to the regular education expenditure per pupil before federal EHA-B funds are used. As the federal regulations state, "The excess cost requirement prevents districts from using EHA-B funds to support all the costs directly attributable to the education of a handicapped child."[55] Preschool and services for youth between the ages of 18 and 21 are exempt from this requirement if no local or state funds are available for nonhandicapped children in those age groups.

The federal EHA statute also requires districts to use EHA-B dollars to supplement and not supplant state and local expenditures for special education services.[56] Thus, districts cannot use federal EHA-B funds to pay for resources that previously were supported by state and local funds. The intent of this requirement is to ensure that federal funds increase state and local efforts and do not take their place. Special allowances, however, can be made in cases of enrollment declines among handicapped students and unusually large one-time expenditures for construction and equipment. The EHA-B regulations also prohibit states from commingling EHA-B funds

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[55]Sec. 300.186, 34 CFR Chapter III (7-1-87 Edition).

[56]Sec. 300.230, op cit.

with other state funds and indicate that separate accounting schemes that establish an "audit trail" for Part B expenditures will satisfy this requirement.[57]

Beyond meeting these requirements districts are free to decide how best to distribute their EHA-B dollars. This discretion raises a number of questions. To what extent do districts apply federal funds to specific expenditure areas? For example, to what degree are EHA-B dollars spent for direct instruction and services as opposed to support services? What types of special education instructional programs and related services do districts purchase with these federal dollars? To what extent are federal funds spent on teachers and aides as opposed to non-personnel items? Do districts systematically differ in their use of federal funds?

Two perspectives are useful in addressing these questions. One focuses on the distribution of total federal EHA-B expenditures and examines the percentage of these dollars spent in various categories such as support services, supplemental services, and instructional programs. The second perspective looks at the percentage of total expenditures for special education comprised by federal EHA-B funds. For example, what percentage of the total cost of preschool programs for handicapped children is derived from federal funds? This second perspective depicts the role of federal dollars in relation to all special education dollars for specific categories of interest.

FEDERAL EXPENDITURES FOR SPECIAL EDUCATION INSTRUCTIONAL AND SUPPORT SERVICES

As with total expenditures, the great majority of federal EHA-B expenditures are spent for instructional programs and supplemental services. Support services as defined in this study, comprise a range of district-level special education functions that include the district and special school supervisors of special education, inservice training, Child Find, curricular development, substitute special education teachers, and public liaison

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[57]Sec. 300.145, op. cit.

roles. Table 5.1 displays the average percentage of federal dollars devoted to special education across all instructional programs, supplemental services, and support services. Nationwide, EHA-B expenditures are distributed quite evenly among the categories listed. However, combining the first three categories into one category representing instructional services to students, and leaving support services that are provided districtwide as a comparison, reveals that 79 percent of EHA-B funds support instructional programs and services and 21 percent are directed toward district support services.

Although the great majority of EHA-B expenditures support students' instructional programs and supplemental services and less than a quarter are spent for support services, EHA-B funds are more likely than all special education funds to be spent for support services (Figure 5.1). Twenty-one percent of EHA-B expenditures go toward support services; in comparison, 11 percent of total expenditures for special education are directed at support services.

The larger role played by EHA-B dollars in providing support services for students with disabilities is also apparent in the larger percentage of total expenditures for support services accounted for by EHA-B funds. Overall, EHA-B expenditures comprise 6 percent of total expenditures for special education. Seventeen percent of total expenditures for support services is federal while 5 percent of total expenditures for instructional programs and supplemental services is federal (Table 5.2).

These national averages mask considerable variation among individual districts, particularly with respect to the EHA-B contribution to total expenditures for support services. The interquartile range for districts' federal expenditures as a percentage of total expenditures for support services extends from 1 percent to 20 percent. That is, in half the districts EHA-B dollars account for between 1 and 20 percent of total expenditures for special education support services. However, these interquartile values

Table 5.1

Distribution of Federal (EHA-B) Special Education Expenditures by Type of Program or Service

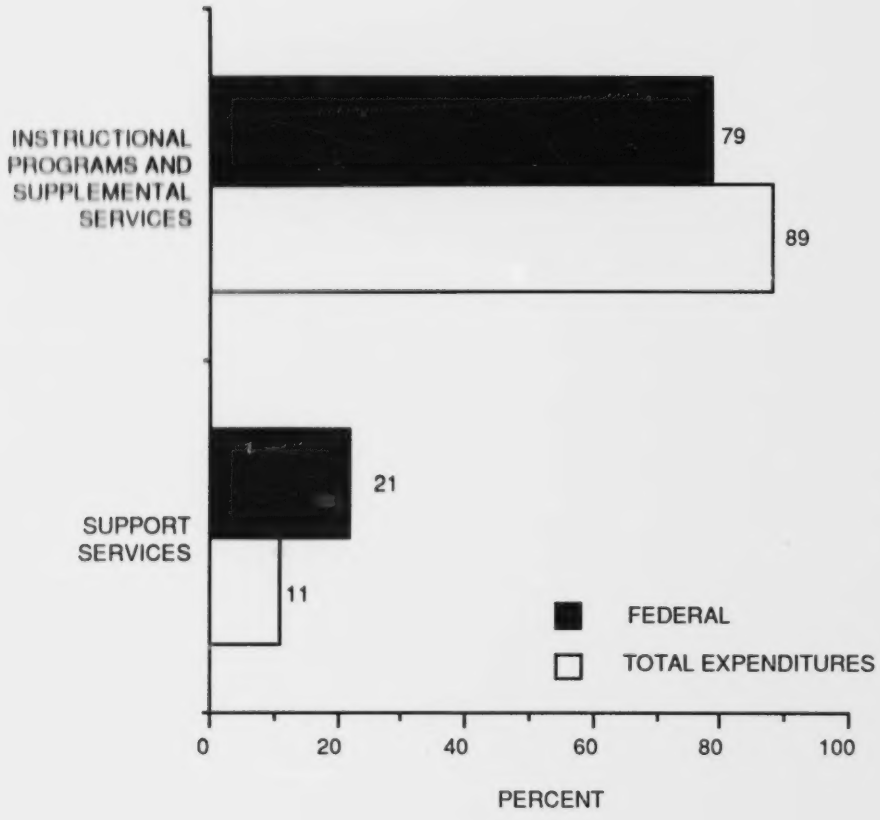
Program/Service	Percent of Federal (EHA-B) Expenditures
Self-Contained Programs	27%
Resource Programs	26
Other Instructional Programs and Services[a/]	26
Support Services[b/]	21
Total	100

a/ Includes preschool, residential, home/hospital, and all supplemental services.

b/ Includes administrative and supervisory staff, inservice training, Child Find, legal fees, substitute teachers, and public liaisons.

FIGURE 5.1

Distribution Of Federal EHA-B Expenditures And Total Expenditures For Special Education



SOURCE: Expenditures Survey

Table 5.2

Federal (EHA-B) Percentage of Within District Special Education Expenditures by Expenditure Component

Expenditure Component	Federal (EHA-B) Percent of Total Expenditures
Instructional Programs and Supplemental Services	5%
Support Services	17
Total	6

also mean that in 25 percent of districts this percentage is less than 1 while it is more than 20 in the remaining 25 percent of districts. This variety is not evident when EHA-B contributions to total instructional expenditures are considered. An interquartile range of 2 to 6 percent characterizes federal contributions to the total spent for instructional programs and supplemental services. In fact, EHA-B funds because of their small magnitude are unlikely to comprise a large percentage of the total amount spent for instruction and supplemental services. Even if a district were to devote all its EHA-B dollars to this category, it is highly unlikely that the percentage contributed by those federal dollars would be very large.[58]

FEDERAL EXPENDITURES FOR SPECIAL EDUCATION PROGRAMS AND SERVICES

Although EHA-B funds play a larger role in defraying the costs of support services than instructional and supplemental services, still the great majority of EHA-B funds (79 percent) on average are spent for instructional programs and services, not support services. Do these federal instructional expenditures concentrate in particular areas or are they spread uniformly across different types of programs, providers, or resources? The following sections address this question. The reader should note that we focus in these sections on expenditures for instructional programs and supplemental services, excluding for the moment federal expenditures for support services.

Expenditures for Types of Programs and Supplemental Services

The Expenditures Survey results suggest that district decisionmakers rely more on federal EHA-B dollars to support related services than to support other types of programs and services. Related services in this instance refer to all supplemental services other than transportation, assessment, adaptive physical education, and special

[58]The highest federal percentage of total expenditures for special education found among the districts sampled in the Expenditures Survey was 15 percent.

vocational instruction. This pattern is evident both in districts' distribution of EHA-B dollars and in federal dollars as a percentage of total expenditures. For example, related services account for 15 percent of all EHA-B dollars spent, but as noted previously in Chapter 3, related services account for only 10 percent of all dollars spent for special education. Although this difference is not statistically significant, it is reinforced with data regarding EHA-B contributions to total expenditures for types of instructional programs and specific supplemental services. Federal dollars at 11 percent contribute a larger share of total related services costs than they contribute to total costs in other program areas (Table 5.3, first column).

Often federal dollars play a more dramatic role with respect to specific categories of expenditures in a district than is evident in nationwide averages. For example, if we examine only those instances where districts used federal EHA-B funds for related services and eliminate districts where EHA-B funds were not used at all (the second column on Table 5.3), the federal percentage of total related services expenditures increases from 11 to 47. This approach noticeably increases the percentage of federal contribution to total expenditures in all program and service categories, but it has the largest effect on related services. The large difference (11 percent versus 47 percent) indicates that when federal dollars are used to fund related services, those funds make a substantial contribution. However, the difference also indicates that a number of districts do not allocate any federal dollars to related services. District decisions may be influenced in these instances by the nonsupplanting requirements that prohibit using EHA-B funds to pay for services previously supported by state and local funds. These situations will vary across districts depending on past practices of funding specific programs and services.

Preschool programs merit attention given the interest of federal policymakers in expanding services to this age group. As previously noted, the Expenditures Survey

Table 5.3

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Type of Program or Service

Program Type	Total Expenditures	Total Expenditures for Programs Receiving Federal Funds Only[a/]
Preschool	8%	30%
Self-Contained	7	17
Resource Program	4	19
Home/Hospital	2	16
Residential	<1	*
Vocational	8	36
Related Services	11	47
Assessment	6	11
Transportation	2	24
All Programs and Related Services	5	20

a/ This column excludes programs that receive no EHA-B funding. The percentages represent the share of total expenditures accounted for by EHA-B expenditures for all programs receiving any EHA-B funds.

* Too few cases for statistical significance.

provides information relevant to these programs prior to the enactment of the 1986 Amendments to EHA, which increased federal resources for expanding preschool services. Table 5.4 shows the distribution of federal EHA-B dollars by the age-levels of all instructional programs. While 84 percent of all federal expenditures support the 5 through 21 age group, 9 percent are spent for children in preschool. This percentage is slightly larger than the percentage of total expenditures devoted to preschool programs (6 percent). Once sampling error is taken into account, however, these percentages are about equal. Moreover, EHA-B dollars account for 8 percent of all preschool expenditures, a level just slightly higher than federal contribution levels for most other types of programs. These patterns suggest that preschool special education programs, in spite of the low percentage of children involved, held their own and possibly fared better with respect to decisions about the allocation of EHA-B funds in the 1985-86 school year.

The patterns exhibited by programs within the preschool age group are also instructive. The percentages in Table 5.5, which divides the preschool age group into infant/toddler programs for children aged birth through 2 and early childhood programs serving pupils aged 3 through 5, indicate that 19 percent of total expenditures for infant/toddler programs came from federal EHA-B sources compared with 8 percent of total expenditures for programs for the 3 through 5 age group. Although the sampling error on the infant/toddler estimate is relatively high, these patterns suggest that federal EHA-B funds may have constituted an important source of support for infant/toddler programs.

These patterns of districts' use of EHA-B dollars for preschool services may be a result of the excess cost provision controlling the use of EHA-B funds. This provision does not apply to programs for preschool youth when other state and local funds are

Table 5.4

Distribution of Federal (EHA-B) Special Education Expenditures by Age Level of Program

Program/Service	Percent of Federal (EHA-B) Expenditures
Preschool (0-5)	9%
Self-Contained and Resource Programs (Ages 5-21)	84
Other[a/]	7

a/ Includes residential, home/hospital, and special vocational programs for students aged 3 through 21.

Table 5.5

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Program Age Level

Program Age Level	Percent of Federal (EHA-B) Expenditures
Infant	19%
Preschool/Early Childhood	8
Ages 5-21 (Self-Contained and Resource Programs)	5
Other[a/]	3
All Programs	5

a/ Includes residential, home/hospital, and special vocational programs which could not be separated into age categories.

not available for nonhandicapped preschoolers. States and districts may have found it less questionable to direct EHA-B support to preschool programs that often have neither been mandated nor funded than to longer established programs for older pupils.

Federal Expenditures Across Providers

The percentage of total expenditures accounted for by federal dollars is fairly similar across different providers (Table 5.6).[59] Five to 6 percent of special education program costs in districts, cooperatives, and purchased services are paid for by federal funds. This level drops to 2 percent in private schools.

Federal Expenditures for Resources

Among resources used by programs (teachers, aides, other personnel such as therapists and psychologists, equipment, and other items such as space and books), the greatest percentage of federal EHA-B expenditures supports staff in instructional programs. Fifty-eight percent of all federal expenditures are spent on teachers (39 percent) and aides (19 percent) (Table 5.7).

Thirty-four percent of federal dollars are spent for instructional personnel other than teachers or aides. This group comprises 22 percent of total instructional expenditures. The higher percentage of federal expenditures accounted for by other personnel may reflect the previous finding that district officials may be more likely to spend federal dollars for related services than for other types of programs. Related services are staffed primarily by professionals who fall in the category of other personnel.

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[59]The Expenditures Survey data do not permit a calculation of how federal funds are distributed to other state and local agencies. Data related to federal EHA-B funds were collected only from districts and cooperatives. Consequently if these external agencies received EHA-B support independently from state education agencies, the survey would not have detected it.

Table 5.6

Federal (EHA-B) Percentage of All Expenditures for Special Education Instructional Services by Service Provider

Provider	Federal (EHA-B) Percent of Total Expenditures
District	5%
Co-op	6
Private	2
Other State and Local Agencies	<1
Purchased Service	6
All Providers	5

Table 5.7

Distribution of Federal (EHA-B) and Total Expenditures for Special Education by Type of Resource

Resource Type	Percent of Federal (EHA-B) Expenditures for Instructional Services	Percent of Total Expenditures for Instructional Services
Aide	19%	8%
Teacher	39	57
Other Professionals/Practitioners and Personnel[a/]	34	22
Non-Personnel	8	14

a/ Includes, for example, therapists, social workers, speech/language pathologists, school psychologists, clinical psychologists, counselors, attendants, and bus drivers.

Aides also appear to be funded in greater proportion by EHA-B dollars relative to their share of total expenditures. Nineteen percent of federal EHA-B expenditures supports special education aides, whereas aides only account for 8 percent of total expenditures for special education. Once again, the standard errors associated with these numbers advise caution about their significance. Nevertheless, the patterns suggest that federal expenditures are more likely to emphasize personnel other than classroom teachers.

Federal dollar contributions to total expenditures for most resources reflect the low ranges reported elsewhere in this chapter (Table 5.8). The one exception is associated with expenditures for aides. Fourteen percent of total expenditures for special education aides derives from federal funds, while total expenditures for other types of resources amount to between 4 and 5 percent. It is worth noting that despite the slightly larger percentage of federal funds spent for "other personnel," only 5 percent of total expenditures for this group is federal.

Overall, districts appear selective in their allocation of federal EHA-B funds. If district decisions were random, the share of EHA-B expenditures and total expenditures would be fairly similar. The Expenditures Survey results point toward EHA-B funds frequently serving as supplemental funding and not core support for district special education programs. More specifically, federal expenditures are more likely to provide support services, instructional staff other than teachers, and related services than are total expenditures. These findings appear consistent with the spirit of the supplement, not supplant provisions. They may also reflect a tendency among district officials to view federal dollars as less stable than either state or local resources, and therefore, better directed to areas where fluctuations can be more easily handled.

Table 5.8

Federal (EHA-B) Percentage of Total Expenditures for Special Education Instructional Services by Type of Resource

	Resource Type			
Program/Service	Teachers	Aides	Other Professionals/ Practitioners	Non-Personnel
Instructional Programs	5%	14%	2%	9%
Supplemental Services	3	6	8	6
Total	4	13	5	7

FEDERAL EXPENDITURE DIFFERENCES ACROSS DISTRICTS

Because districts have discretion in how they spend federal funds as long as they comply with the excess cost, non-supplanting, and non-commingling requirements, the individual choices they make are likely to differ. However, in terms of the percentage of total expenditures for programs and services that are federal, few systematic differences are evident among small versus large, or urban versus rural, districts (Table 5.9, second column). Across all categories of size and urbanicity, only between 3 and 7 percent of total dollars spent for special education instructional programs and services is federal. Because these averages are shaped by the small magnitude of federal dollars in relationship to all dollars spent for these purposes, we would expect the percentage of federal contributions to total expenditures to be quite stable. At the same time, even these small percentage differences can amount to sizable dollar differences among districts.

To examine the degree to which districts differ in the specific ways they spend federal dollars and, in particular, the degree to which these differences are attributable to the size or metropolitan status of districts, we looked at the distribution of federal expenditures across the dimensions previously described for the nation as a whole. Because grouping the districts in the sample by size and metropolitan status reduced the number of districts in any one category, most of the results are subject to high standard errors. Thus, in most cases, the differences among districts are only suggestive. Nevertheless, highlights of these comparisons are worth presenting for their informative value.

Large districts and urban districts tend to direct fewer federal dollars into support services for special education relative to other districts and more of their federal dollars toward instructional programs and supplemental services (Table 5.10). Large, medium-sized, and urban districts devote considerably greater proportions of

Table 5.9

Average Federal (EHA-B) Percentage of Special Education Program and Service Expenditures by Selected Characteristics of Districts

District Characteristics	Federal Expenditures for Instructional Programs Only	Federal Expenditures for Instructional Programs and Supplemental Services
Size of Enrollment		
Small	7%	6%
Medium	4	3
Large	4	5
Metropolitan Status		
Rural	5	5
Suburb	6	5
Center City	8	7
Across All Districts	6	5

Table 5.10

Distribution of Federal (EHA-B) Special Education Expenditures
for Instructional Services and Support Services
by Selected District Characteristics

District Characteristics	Federal Expenditures for Instructional Programs and Supplemental Services	Federal Expenditures for Support Services
Size of Enrollment		
Small	75%	25%
Medium	81	19
Large	84	16
Metropolitan Status		
Rural	80	20
Suburb	72	28
Center City	89	11
Across All Districts[a/]	77	23

a/ These percentages are based on weighting data obtained from the Expenditures Survey by district weight as opposed to handicapped pupil weights. The values differ slightly from those displayed in Table 5.1 which reflect pupil weights. District weights are appropriate to analyses examining district characteristics.

federal dollars to the support of self-contained programs as opposed to the other types of programs and services (Table 5.11). Urban districts in particular rely on EHA-B funds to support self-contained programs in contrast to resource programs. Even taking standard errors into account, this emphasis is statistically significant. In contrast, small districts and suburban districts direct the greatest share of federal funds for instruction and supplemental services to resource programs. Rural districts distribute relatively equal proportions of federal dollars to resource and self-contained programs, but fewer federal dollars to related services.

The percentage of federal expenditures accounted for by preschool programs shows less variation across types of districts than do percentages in the previous areas (Table 5.12). Suburban districts and medium-sized districts are more likely to devote a slightly higher share of federal dollars to preschool programs.

Federal expenditures in large districts are distributed relatively evenly across teachers, aides, and other personnel, with each category accounting for around a third of federal expenditures (Table 5.13). Small districts and suburban districts devote a noticeably lower percentage of federal funds to the support of aides (less than 10 percent). Moreover, suburban districts spend a higher proportion of federal dollars than do other districts for staff included in the category of other practitioners and professionals. These staff include therapists, school and clinical psychologists, counselors, social workers, and classified staff such as bus drivers and attendants.

Table 5.11

Distribution of Federal (EHA-B) Expenditures for Types of Special Education Programs and Services by Selected District Characteristics

District Characteristics	Average Percentage of Federal Expenditures			
	Resource Programs	Self-Contained	Related Services	Other Instruction and Services[a/]
Size of Enrollment				
Small	45%	27%	20%	7%
Medium	11	47	14	29
Large	9	38	26	26
Metropolitan Status				
Rural	41	42	12	6
Suburb	33	23	24	21
Center City	5	53	22	20
Across All Districts	33	34	19	15

a/ Includes special vocational services, transportation, assessment, residential, home/hospital programs and preschool programs.

Table 5.12

Distribution of Federal (EHA-B) Special Education Expenditures
for Age Groups Served in Instructional Programs
by Selected Characteristics of Districts

District Characteristics	Average Percentage of Federal Expenditures		
	Preschool 0-5	Self-Contained and Resource Programs 5-21	Other Programs[a/]
Size of Enrollment			
Small	8%	91%	2%
Medium	11	74	15
Large	8	82	10
Metropolitan Status			
Rural	4	96	<1
Suburb	15	69	15
Center City	6	89	5
Across All Districts	9	84	7

a/ Includes residential programs, home/hospital programs and special vocational services.

Table 5.13

Distribution of Federal (EHA-B) Expenditures for Types of Special Education Resources by Selected District Characteristics

District Characteristics	Percentage of Federal Expenditures				
	Teachers	Aides	Other Practitioners/ Professionals	Non-Personnel	Total
District Size					
Small	49%	8%	29%	14%	100%
Medium	42	25	25	8	100
Large	36	32	31	1	100
Metropolitan Status					
Rural	47	17	18	17	100
Suburban	44	9	39	8	100
Center City	52	18	29	1	100
Across All Districts	46	14	29	11	100

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APPENDIX A

Design and Procedures for Sample Selection

SAMPLE

The Expenditures Survey was designed to provide nationally representative information on average expenditures per pupil for special education and related services. The research questions addressed by the study also involved estimating expenditures by handicapping condition not only for the nation but by region, metropolitan status, and size of school district. In addition, some research questions use the school district and not the pupil as the unit of analysis. A single sample cannot satisfy each of these requirements equally well.

The sample was selected to provide the best estimates of national data within the available resources. Additional weighting schemes (as described later) were developed to use in answering some research questions for which the basic weights for national estimates are not the most appropriate.

The sample was drawn using a multi-stage, stratified and clustered probability design of 60 districts within 18 states. States and districts were selected with probability proportional to enrollment. In 14 states, two districts were chosen; in four states, eight districts were selected. These latter states were oversampled to permit an examination of intra-state expenditures variation.

State Sample Selection

The states were stratified into nine major strata based on (1) region of the country and (2) special education funding formula predominant in the state in 1983-84. The three regions were:

1. North: New England, Middle Atlantic, East North Central, West North Central;
2. South: South Atlantic, East South Central; and
3. West: West South Central, Mountain, and Pacific.

The three types of funding formula were:

1. Expenditure based;
2. Grant per pupil served; and
3. Grant per unit served.

These formula categories are fairly generic, and in some states classification is not easy. Our classifications are based on the 1983-84 *School Finance at a Glance 1983-84* (McGuire and Dougherty, Education Finance Center, Education Commission of the States) and consultations with staff of the Education Commission of the States. Figure 1 lists the states included in the study by region and funding formula.

FIGURE 1

Region	Expenditure-based	Pupil-based	Unit-based
1	Michigan PENNSYLVANIA Wisconsin Connecticut	Iowa Massachusetts	Illinois OHIO
2	Virginia	Arkansas Florida Oklahoma TEXAS	Georgia Louisiana
3	Colorado	Arizona	CALIFORNIA

Note: States in capitals were oversampled

The number of states selected for a particular cell depends on the number of students enrolled in the states in that cell.

Within the nine strata, additional control over selection was obtained by sorting the states into an order based primarily on percentage of population in the state in metropolitan statistical areas, and secondarily on per capita income, non-white

enrollment, and percentage of all education funds from state sources. The states were then sampled using systematic sampling with probabilities proportional to the states' enrollment. Two states in the final sample (Texas and California) were sampled with certainty because of their large enrollments.

Sampling Districts Within States

After the state sample was selected, districts within states were first stratified by MSA status (center city, outside center city within MSA, and outside MSA). Districts were then sorted within these strata by three levels of median family income (highest, middle, and lowest third of the population within the state). Then, within these strata, districts were sorted by percentage non-white enrollment.

Since districts were selected within strata using systematic sampling with probabilities proportional to enrollment, size stratification was also achieved. One district in the final sample was selected with certainty, due to its large enrollment within its state.

Substitution Procedures

States or districts unwilling to participate were replaced through a substitution procedure that involved selecting a replacement state or district within the original stratum. For a state this meant selecting a replacement state that had the same formula type and was in the same region as the original. One state was substituted.

For districts, replacements were selected first with the same MSA status and approximate enrollment as the district initially selected, and second, with similar income and percentage non-white enrollment. Eleven districts (18 percent of the original sample) declined to participate and were replaced.

The state and district refusals were not, as far as can be determined, related to the specific purpose of the study, so there appears to be little likelihood that the

sample results are biased for important variables. In addition, replacement within stratum should have eliminated biases for variables used in sampling.

CALCULATING AND USING WEIGHTS

Calculating Weights

Sample weights for each of the districts are the inverse of the district's probability of having been included in the sample. The probability of a district being included in the study was dependent on two factors: (1) whether the district's state was selected with certainty or probabilistically, and (2) whether the district was selected with certainty or probabilistically. Therefore, one of four variants of a basic inverse was used to calculate a district weight.

Since the property of the weights summing to the number of districts in the United States is desirable for discussing district-related research questions, the district weights have been adjusted to sum to the total number of districts in the country (with the exclusion of Alaska and Hawaii).

To obtain pupil weights, each pupil weight was multiplied by the district's total enrollment (collected during the study). Pupil weights also have been adjusted to sum to the known pupil enrollment in the country.

Finally, a third weight was calculated based exclusively on special education pupil counts, since this is the population for which we typically want to make inferences. While the total pupil weight is a good proxy for special education counts, handicapped enrollment weights are useful in the estimation of handicapped population ratios. The calculation of the special education pupil weight was similar to that of pupil weight except special education pupil counts were substituted for total enrollment counts in each calculation.

Use of Weights

The choice of which weight to use in making estimates depends on the nature of the research question being examined. In general, the weight is the same as the denominator of the calculation. For example, an estimate of the cost of a special education program requires using the special education pupil weight; an examination of the number of districts with a certain attribute involves use of the district weight. Projecting the proportion of handicapped pupils in the total population entails using the total pupil weight.

In addition to reflecting the appropriate weight, the accuracy of an estimate is particularly dependent on the quality of the data in districts with large weights in a specific estimation. Therefore, prior to reporting results particular attention was paid to both the number of observations, the weight of that observation, and the standard error calculated for the estimate. In some cases where data were suspect or the number of districts limited, we have chosen to eliminate those estimates from our analysis.

Standard Errors

Because the data used in the analyses were derived from districts that had been selected using a complex, multi-stage design, standard error routines based on random samples were inappropriate. Therefore, in computing the standard errors reported in this report we have used the routines contained in SESUDAAN (Shah, 1981), which were designed to compute "certain rates, means or totals, and their standard errors from the data collected in a complex multistage sample survey."

The reliability of our standard errors, like those for nationally estimated means, is likely to be more accurate when more cases are used in making the calculation. When the number of cases is fewer than five, one should not rely on the estimate or on the standard error.

Impact of Small Sample Size

While providing sufficient cases to make national estimates, a sample size of only 60 school districts has obvious inherent weaknesses, particularly, when clusters of school districts are compared. In addition, our sample, since it was designed to provide student-level national estimates, has a larger percentage of large and central city school districts than the nation as a whole. These districts are more likely to have more special education students and sufficient resources to provide a broader range of programs and services.

Furthermore, since state policies can strongly influence the availability of a service (e.g., the legality of school districts within a state to provide social work services) our results our strongly influenced by the policies of the 18 states sampled in this study. If these states are more likely than states in general, for example, to participate in cooperative arrangements, operate preschool programs, or make extensive use of non-categorical programs, our results are less generalizable.

APPENDIX B

Methodology for Calculating Costs

CALCULATING EXPENDITURES

The calculation of all expenditures in this study was based on a resource cost model (RCM) or ingredients approach. This approach requires a multi-step process to calculate an expenditure for a program, i.e., the smallest service delivery unit--typically a classroom. The RCM methodology calls for obtaining relevant resource and pricing information about educational programs, defined as those clusters of activities that combine to provide groups of children with the same type of instruction as measured by location of the instruction, staff/pupil ratios, and duration of instruction.

The first step in implementing the RCM involved specifying all resources (e.g., teachers, aides, supplies, capital equipment) used in each program. In the Expenditures Survey, these resource descriptions were typically developed with the assistance of those responsible for managing the provision of each program area. For example, the resources used in a self-contained mentally retarded program were provided by the MR coordinator or director of special education; the resources used to provide special education transportation by a representative of the transportation department; and the resources in a regular elementary program by either the assistant superintendent for elementary and secondary instruction or the elementary education coordinator.

The second step in calculating expenditures using the RCM approach involved determining a price for each resource. As described below, determining each price varied in the Expenditures Survey depending on the nature of the resource.

Next, expenditures for one unit of a program were computed by multiplying the amount of the specific personnel resource used in the program (e.g., one FTE, .5 FTE), by its unit price and then adding the expenditure for each non-personnel resource. When a district provided more that one unit of a program (e.g., two self-contained MR classes) the district's per-unit expenditure of that program was multiplied by the

number of units. Finally, to calculate a per-pupil expenditure, program expenditures were divided by the number of pupils receiving that program.

The RCM methodology is designed to obtain precise individual program expenditures per pupil receiving that program. That resulted in limitations when programs were combined to obtain expenditures based on a higher levels of aggregation. As an illustration, consider the provision of both direct and consultative physical therapy. Assuming that accurate information on resources, prices, and pupils served by each program has been collected, expenditures were properly calculated for both direct services and consulting services. For calculating the overall amount spent for physical therapy per pupil, however, the Expenditures Survey only had a duplicated pupil count which contained some students receiving direct and consulting services and others receiving just one. As another example, when we calculated the percentage of handicapped pupils receiving physical therapy, the number of pupils receiving a physical therapy service (a duplicated count) was divided by the number of handicapped pupils (an unduplicated count.)

In addition to the issue of pupil counts that arose in aggregated analyses, the quality of any per-pupil expenditure estimate depends on the accuracy of the pupil counts. There are several areas where problems arose in data collection that were confirmed by subsequent data analysis. For example, the number of pupils reached by related services consulting services was difficult for service providers to estimate. However, the number of such programs is small, and this data problem did not have a major effect on the calculation of expenditures for individual related services. Estimates of pupil counts for regular education support services (such as health and guidance) and regular education supplemental services (e.g., music, art, physical education, etc.) were also problematic. Therefore, in estimating regular education expenditures we collapsed these programs into a single regular education program,

divided by the number of students provided by the district for regular academic instruction.

OBTAINING INPUT PRICES

Personnel

Personnel comprise the major expenditures within each program. Our objective was to obtain a total price for each personnel resource. This total price included salaries and all benefits regardless of funding source. Thus, determining a price generally involved summing the average salary (per year or hour, whichever was most appropriate) for a personnel category (e.g., a regular teacher, a special education teacher, an aide) times a locally paid benefits ratio (e.g., group life and health insurance, social security payments, tuition reimbursement, worker's and unemployment compensation) and times a state-paid benefits ratio. The latter benefits ratio typically contained additional retirement payments. The local and state benefit ratios varied considerably within district's because of the differences in benefit packages given to teachers, administrators, and support staff. Prices for personnel resources were typically obtained from accounting, personnel, or payroll departments.

Teachers

Teachers were initially categorized into four distinct types--regular teachers, special education teachers, resource supplemental, and specialists. Within each program, the intent was to specify the teacher resource by one of these categories and obtain separate prices for each. The underlying assumption was that the price for types of teachers varied because of differences in degree level and length of service. In practice, however, only a breakout between regular and special education teachers was available in the school districts. Further, prices for resource teachers and specialists used in the analyses are generally identical to the price for a regular

teacher. For this study, teacher salaries of nine and 10 months were treated identically.

Other Certified Personnel

Other certified personnel were categorized as librarian, welfare and attendance, counselor, social worker, psychologist, nurse, occupational therapist, physical therapist, speech therapist, or other. Separate prices were used in determining the expenditures for each program staffed by these personnel. For example, the expenditure for a speech resource program used the average price of a speech therapist in the district while the amount expended on a physical therapy program was calculated using the average price of a physical therapist.

Aides

Data were collected on two types of aides--instructional and non-instructional; in both cases, the price was most often specified by the district on an hourly basis. Prices for aides vary within a district because instructional aides are usually covered by a different wage and benefit program than non-instructional aides. Since expenditures for food services were excluded from the study, data on food service aides were excluded too.

Administrators and Classified Support Staff

District-level administrators included the superintendent, business manager, district-level support, and similar personnel. Most are employed on a 11 or 12 month basis, which were treated identically. School-level administrators included the principal, assistant principal, and other office staff. The work years for these personnel varied from district to district and within district. It is not uncommon for a school to employ several school-level secretaries, for example, some for 9 months and some for 11 months. In such cases, two prices for secretaries were used in calculating

school-level administration expenditures in that district. Program-level administration included the director of special education, director of compensatory education, handicapped pupil coordinators and specialists, and the like. The majority of these staff is 11 or 12 month personnel.

Non-personnel Expenditures

The Expenditures Survey used several broad categories for non-personnel expenditures. The study also used indices derived from other sources to estimate certain non-personnel expenditures for basic equipment and furnishings, energy, and school construction.

Supplies

Supplies were defined as materials with a useful life of one year or less. This category includes items such as paper, crayons, and disposable workbooks used in programs as well as supplies and materials needed to maintain buildings.

Prices on program supplies were provided by the program informants, and attempts were made to verify these estimates against overall district budgets. The latter information was usually provided by the accounting or budget department.

Supplies and materials used in building operation (e.g., paper towels, cleaning agents) came from district budgets and were provided by the accounting or the assistant superintendent for business services. Estimated expenditures for supplies were directly added to the personnel costs in calculating program expenditures.

Textbooks

Because of the vast number of textbooks used in a school district and the large variation in prices (e.g., an elementary school reader versus a high school physics text), it was necessary to constrain the number of prices used in the study. School districts were requested to provide seven typical textbook prices--elementary academic,

elementary supplemental, middle or junior high academic, middle or junior high supplemental, high school academic, high school supplemental, and vocational education. In addition, when a special education program used texts that were not available in the regular education program, separate prices for these texts were collected. Where districts did not purchase textbooks but were supplied them by the state, the district provided its best estimate of the prices.

Equipment

For special education equipment prices, detailed equipment specifications were collected as part of the process of developing the resource inputs. Prices and years of life for the special education equipment were obtained from the purchasing department, program staff, invoices, and catalogues. These equipment prices were spread over the useful life of the equipment. In the case of a braille writer, for example, which may cost $1500 and last 10 years, $150 was added to program expenditures.

The study made no attempt to collect data on generally available regular education equipment; rather, basic furnishings and equipment prices are based on a index prepared for this study utilizing data from the American Appraisal Associates. In calculating expenditures, the RCM multiplied the equipment cost index by the square footage utilized by the school or administrative unit and added the cost to the respective support service expenditure category.

Energy

As was the case for furnishings and equipment, the study created an energy index based on building size. The energy index is applied in the same way as the equipment index to support service expenditures.

Construction

Similar to basic furnishings and equipment, the study created construction indices by school level. The indices were applied to support service expenditures in the same way as the equipment index. Land costs and land preparation costs were excluded from all calculations.

Transportation

Transportation was divided into regular transportation and special education transportation categories. The first category included all equipment, personnel, and supplies used to carry pupils on regularly scheduled bus runs using non-modified equipment. Handicapped pupils capable of riding these conveyances were treated as being regular transportation users. The second category included the resources required to transport students that required modifications to schedules, or equipment, or that used additional personnel (an attendant). Data on transportation, including the number and types of personnel, equipment and years of life, gas and insurance costs, and replacement costs of equipment, were provided by each district's transportation coordinator.

Purchased Services

Services purchased by the district included (1) auxiliary personnel utilized in a program such as a physical therapist, (2) a program provided by a non-district employee within the district, such as psychiatrist's services, or (3) externally contracted supplemental services such as transportation. The prices paid for purchased services were provided by program-level specialists through a review of their budgets or invoices.

Miscellaneous

Districts have numerous other expenditures that generally affect day-to-day operations, such as insurance premiums, association dues, and legal fees. These additional items are included in our calculation of district administration and were obtained from the accounting or budget office; they generally reflect planned expenditures for the year.

APPENDIX C

Supporting Tables

Appendix Table C1.1

Program Offerings for Primary Instructional Placement

Program:	Percent of Districts Offering Program	
	unwtd. n	wtd. %
Preschool	48	70%
Self-Contained	60	100%
Residential	35	34%
Home/Hospital	37	37%
Resource Program	60	100%

Weighted by District Weight.

Appendix Table C1.2

Supplemental Services Offerings

Program:	Percent of Districts Offering Supplemental Svcs.	
	unwtd. n	wtd. %
Vocational Education	45	54%
Adaptive Physical Education	42	52%
Transportation Services	55	82%
Assessment	60	100%
All Related Services	60	100%

Weighted by District Weight.

Appendix Table C1.3

Individual Related Service Offerings

Related Service:	Percent of Districts Offering Related Service	
	unwtd. n	wtd. %
Occupational Therapy	47	66%
Physical Therapy	45	52%
Speech Language Pathology	57	90%
Psychological Services	33	42%
School Health Services	39	54%
Social Work Services	32	44%
Guidance and Counseling Services	40	57%

Weighted by District Weight.

Appendix Table C1.4

Percentage of Total Enrollment
Receiving Special Education
by Handicapping Condition

Handicapping Condition:	Sample Size	Percent of Total Enrollment	
		mean	(s.e.)
Learning Disabled	60	5%	(<1%)
Speech Impaired	60	3%	(<1%)
Mentally Retarded	60	2%	(<1%)
Seriously Emotionally Disturbed	60	1%	(<1%)
Orthopedically Impaired	60	<1%	(<1%)
Multihandicapped	60	<1%	(<1%)
Deaf	60	<1%	(<1%)
Deaf-Blind	60	<1%	(<1%)
Hard of Hearing	60	<1%	(<1%)
Other Health Impaired/ Autistic	60	<1%	(<1%)
Visually Handicapped	60	<1%	(<1%)
Non-Categorized	60	<1%	(<1%)
Across All Conditions	60	11%	-

Weighted by Total Pupil Weight.

Appendix Table C1.5

Percentage of Handicapped Enrollment
Receiving Special Education
by Handicapping Condition

Handicapping Condition:	Sample Size	Percent of Handicapped Enrollment	
		mean	(s.e.)
Learning Disabled	60	45%	(3%)
Speech Impaired	60	25%	(3%)
Mentally Retarded	60	14%	(2%)
Seriously Emotionally Disturbed	60	7%	(2%)
Orthopedically Impaired	60	1%	(<1%)
Multihandicapped	60	2%	(<1%)
Deaf	60	<1%	(<1%)
Deaf-Blind	60	<1%	(<1%)
Hard of Hearing	60	1%	(<1%)
Other Health Impaired/ Autistic	60	1%	(<1%)
Visually Handicapped	60	1%	(<1%)
Non-Categorized	60	3%	(2%)
Across All Conditions	60	100%	-

Weighted by Handicapped Weight.

Appendix Table C1.6

Percentage of Special Education Students
Enrolled in Types of Special Education Programs by Provider

Program/ Service:	Provider				
	District	Co-op	Private	State/Local Agencies and Purchased	Across All Providers
Preschool					
Mean	2%	1%	<1%	<1%	4%
(Standard Error)	(1%)	(1%)	(<1%)	(<1%)	(1%)
Sample Size	60	60	60	60	60
Self-Contained					
Mean	21%	4%	1%	2%	28%
(Standard Error)	(3%)	(1%)	(<1%)	(1%)	(3%)
Sample Size	60	60	60	60	60
Residential					
Mean	<1%	<1%	<1%	<1%	<1%
(Standard Error)	(<1%)	(<1%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Home/Hospital					
Mean	<1%	<1%	<1%	<1%	1%
(Standard Error)	(<1%)	(<1%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Resource Program					
Mean	59%	7%	<1%	1%	68%
(Standard Error)	(4%)	(3%)	(<1%)	(1%)	(3%)
Sample Size	60	60	60	60	60
Total					
Mean	83%	12%	1%	3%	100%
(Standard Error)	(4%)	(4%)	(<1%)	(1%)	-
Sample Size	60	60	60	60	60

Weighted by Handicapped Weight.

Appendix Table C1.7

Distribution of Program and Service Enrollment
According to Handicapping Condition

Handicapping Condition:	Programs and Services					
	Pre-School	Self Contained	Home/ Hospital	Resi-dential	Resource Program	Total
Learning Disabled						
Mean	1%	19%	<1%	<1%	79%	100%
(Standard Error)	(<1%)	(4%)	(<1%)	(<1%)	(4%)	-
Sample Size	59	59	59	59	59	59
Speech Impaired						
Mean	6%	3%	<1%	<1%	91%	100%
(Standard Error)	(2%)	(1%)	(<1%)	(<1%)	(3%)	-
Sample Size	57	57	57	57	57	57
Mentally Retarded						
Mean	8%	73%	1%	0%	18%	100%
(Standard Error)	(3%)	(5%)	(<1%)	(<1%)	(5%)	-
Sample Size	60	60	60	60	60	60
Seriously Emotionally Disturbed						
Mean	3%	67%	3%	3%	24%	100%
(Standard Error)	(1%)	(7%)	(1%)	(2%)	(7%)	-
Sample Size	53	53	53	53	53	53
Orthopedically Impaired						
Mean	19%	54%	3%	<1%	24%	100%
(Standard Error)	(6%)	(9%)	(1%)	(<1%)	(8%)	-
Sample Size	42	42	42	42	42	42
Multihandicapped						
Mean	12%	77%	4%	2%	5%	100%
(Standard Error)	(4%)	(6%)	(3%)	(1%)	(4%)	-
Sample Size	45	45	45	45	45	45
Deaf						
Mean	10%	66%	4%	19%	1%	100%
(Standard Error)	(8%)	(11%)	(4%)	(7%)	(1%)	-
Sample Size	30	30	30	30	30	30
Deaf/Blind						
Mean	<1%	48%	0%	46%	6%	100%
(Standard Error)	(<1%)	(19%)	(<1%)	(18%)	(5%)	-
Sample Size	10	10	10	10	10	10
Hard of Hearing						
Mean	14%	39%	<1%	<1%	47%	100%
(Standard Error)	(6%)	(6%)	(<1%)	(<1%)	(8%)	-
Sample Size	44	44	44	44	44	44
Other Health Impaired						
Mean	11%	17%	55%	<1%	17%	100%
(Standard Error)	(5%)	(5%)	(13%)	(<1%)	(7%)	-
Sample Size	27	27	27	27	27	27
Autistic						
Mean	13%	66%	<1%	21%	1%	100%
(Standard Error)	(5%)	(14%)	(<1%)	(15%)	(1%)	-
Sample Size	21	21	21	21	21	21
Visually Handicapped						
Mean	10%	17%	1%	4%	69%	100%
(Standard Error)	(4%)	(6%)	(1%)	(2%)	(7%)	-
Sample Size	41	41	41	41	41	41
Students Not Categorized						
Mean	70%	4%	<1%	23%	3%	100%
(Standard Error)	(16%)	(5%)	(<1%)	(15%)	(3%)	-
Sample Size	9	9	9	9	9	9

Weighted by Handicapped Weight.

Appendix Table C1.8

Distribution of Self-Contained Program Enrollment According to Handicapping Condition

Handicapping Condition:	Sample Size	Percent of Self-Contained Enrollment with Handicapping Condition	
		mean	(s.e.)
Learning Disabled	59	25%	(4%)
Speech Impaired	59	2%	(1%)
Mentally Retarded	59	42%	(5%)
Seriously Emotionally Disturbed	59	18%	(4%)
Orthopedically Impaired	59	2%	(<1%)
Multihandicapped	59	6%	(1%)
Deaf	59	2%	(<1%)
Deaf-Blind	59	<1%	(<1%)
Hard of Hearing	59	2%	(1%)
Other Health Impaired	59	<1%	(<1%)
Autistic	59	1%	(<1%)
Visually Handicapped	59	<1%	(<1%)
Students Not Categorized	59	<1%	(<1%)

Weighted by Handicapped Weight.

Appendix Table C1.9

Distribution of Resource Program Enrollment
According to Handicapping Condition

Handicapping Condition:	Sample Size	Percent of Resource Program Enrollment with Handicapping Condition	
		mean	(s.e.)
Learning Disabled	60	52%	(5%)
Speech Impaired	60	36%	(4%)
Mentally Retarded	60	4%	(1%)
Seriously Emotionally Disturbed	60	4%	(2%)
Orthopedically Impaired	60	<1%	(<1%)
Multihandicapped	60	<1%	(<1%)
Deaf	60	<1%	(<1%)
Deaf-Blind	60	<1%	(<1%)
Hard of Hearing	60	2%	(1%)
Other Health Impaired	60	<1%	(<1%)
Autistic	60	<1%	(<1%)
Visually Handicapped	60	1%	(<1%)
Students Not Categorized	60	<1%	(<1%)

Weighted by Handicapped Weight.

Appendix Table C1.10

Distribution of Preschool Program Enrollment According to Handicapping Condition

Handicapping Condition:	Sample Size	Percent of Preschool Program Enrollment with Handicapping Condition	
		mean	(s.e.)
Learning Disabled	47	7%	(2%)
Mentally Retarded	47	25%	(5%)
Speech Impaired	47	19%	(4%)
Multihandicapped	47	10%	(4%)
Autistic	47	1%	(<1%)
Other Health Impaired	47	2%	(1%)
Deaf-Blind	47	<1%	(<1%)
Orthopedically Impaired	47	6%	(2%)
Seriously Emotionally Disturbed	47	9%	(5%)
Deaf	47	1%	(1%)
Hard of Hearing	47	3%	(1%)
Visually Handicapped	47	3%	(1%)
Students Not Categorized	47	14%	(6%)

Weighted by Handicapped Weight.

Appendix Table C1.11

Percentage of Handicapped Students Receiving Supplemental Services

Supplemental Service:	Sample Size	Percent of Handicapped Students Receiving Supplemental Service	
		mean	(s.e.)
Transportation Services	52	30%	(14%)
Guidance and Counseling Services	39	22%	(4%)
Speech Language Services	56	20%	(3%)
School Health Services	37	18%	(5%)
Social Work Services	32	12%	(5%)
Psychological Services	33	10%	(3%)
Adaptive Physical Education	41	6%	(1%)
Occupational Therapy	47	5%	(1%)
Physical Therapy	43	3%	(<1%)

Weighted by Handicapped Weight.

Appendix Table C1.12

Percentage of Students Receiving
Speech/Language Pathology as a Related Service
in School Districts and Cooperatives

Handicapping Condition:	Sample Size	Percent of Speech/ Language Pathology Enrollment with Handicapping Condition	
		mean	(s.e.)
Learning Disabled	53	37%	(5%)
Mentally Retarded	53	29%	(4%)
Seriously Emotionally Disturbed	53	5%	(1%)
Orthopedically Impaired	53	2%	(1%)
Multihandicapped	53	2%	(1%)
Hard of Hearing	53	3%	(1%)
Deaf	53	2%	(1%)
Visually Handicapped	53	<1%	(<1%)
Autistic	53	<1%	(<1%)
Deaf-Blind	53	<1%	(<1%)
Other Health Impaired	53	<1%	(<1%)
Non-Categorical	53	21%	(9%)
Across All Conditions	53	100%	-

Weighted by Handicapped Weight.

Appendix Table C1.13

Distribution of Enrollment in Special Education Instructional Programs by District Size

Program Type:	District Size			All Districts
	Small	Medium	Large	
Preschool				
mean	5%	4%	9%	6%
(standard error)	(1%)	(2%)	(4%)	(1%)
sample size	20	11	16	47
Self-Contained				
mean	19%	23%	39%	22%
(standard error)	(5%)	(6%)	(4%)	(4%)
sample size	22	15	22	59
Residential				
mean	<1%	2%	1%	1%
(standard error)	(<1%)	(1%)	(<1%)	(<1%)
sample size	14	8	13	35
Resource Program				
mean	74%	75%	50%	73%
(standard error)	(5%)	(6%)	(5%)	(4%)
sample size	22	16	22	60
Home/Hospital				
mean	1%	<1%	1%	1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	6	3	10	19

Weighted by District Weight.

Appendix Table C1.14

Distribution of Enrollment in Special Education Instructional Programs by MSA

Program Type:	MSA			
	Rural	Suburban	Center City	All Areas
Preschool				
mean	6%	5%	8%	6%
(standard error)	(1%)	(1%)	(3%)	(1%)
sample size	12	17	18	47
Self-Contained				
mean	16%	24%	34%	22%
(standard error)	(6%)	(4%)	(4%)	(4%)
sample size	13	23	23	59
Residential				
mean	<1%	1%	1%	1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	8	13	14	35
Resource Program				
mean	80%	70%	53%	73%
(standard error)	(5%)	(4%)	(3%)	(4%)
sample size	13	24	23	60
Home/Hospital				
mean	1%	<1%	1%	1%
(standard error)	(1%)	(<1%)	(<1%)	(<1%)
sample size	6	5	10	19

Weighted by District Weight.

Appendix Table C1.15

Distribution of Special Education Enrollment
by Handicapping Condition and Size of District

Handicapping Condition:	District Size			All Districts
	Small	Medium	Large	
Learning Disabled				
mean	46%	47%	40%	45%
(standard error)	(3%)	(5%)	(4%)	(3%)
sample size	22	16	22	60
Speech Impaired				
mean	29%	23%	22%	25%
(standard error)	(3%)	(6%)	(2%)	(3%)
sample size	22	16	22	60
Mentally Retarded				
mean	14%	10%	20%	14%
(standard error)	(3%)	(3%)	(3%)	(2%)
sample size	22	16	22	60
Seriously Emotionally Disturbed				
mean	4%	7%	11%	7%
(standard error)	(1%)	(2%)	(2%)	(2%)
sample size	22	16	22	60
Orthopedically Impaired				
mean	1%	<1%	2%	1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Multihandicapped				
mean	2%	1%	1%	2%
(standard error)	(1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Deaf				
mean	<1%	<1%	1%	<1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Deaf-Blind				
mean	<1%	<1%	<1%	<1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Hard of Hearing				
mean	1%	1%	2%	1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Other Health Impaired/ Autistic				
mean	1%	1%	1%	1%
(standard error)	(1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Visually Handicapped				
mean	1%	<1%	1%	1%
(standard error)	(<1%)	(<1%)	(<1%)	(<1%)
sample size	22	16	22	60
Non-Categorized				
mean	1%	8%	<1%	3%
(standard error)	(<1%)	(5%)	(<1%)	(2%)
sample size	22	16	22	60

Weighted by District Weight.

Appendix Table C2.1

Self-Contained Programs: Average Percent of Students and Hours Spent Each Day in Regular Education

Self-Contained Program Type:	Students Spending Time in Regular Education Program			Average Hours/Day Spent in Regular Education		
	mean	(s.e.)	n	mean	(s.e.)	n
Learning Disabled	100%	(<1%)	34	2.1	(0.1)	34
Speech Impaired	100%	(<1%)	8	1.1	(0.1)	8
Mentally Retarded	86%	(6%)	47	1.3	(0.1)	46
Seriously Emotionally Disturbed	98%	(1%)	32	1.9	(0.4)	32
Orthopedically Impaired	54%	(6%)	19	1.8	(0.3)	18
Multihandicapped	73%	(10%)	16	0.9	(0.1)	15
Deaf	81%	(8%)	10	1.8	(0.1)	10
Deaf-Blind	100%	(<1%)	2	0.4	(0.1)	2
Hard of Hearing	100%	(<1%)	12	3.6	(0.4)	12
Other Health Impaired	37%	(na)	1	2	(<.1)	1
Autistic	31%	(16%)	7	0.9	(0.1)	7
Visually Handicapped	100%	(<1%)	13	2.1	(0.2)	13
Non-Categorical	82%	(15%)	31	1.9	(0.2)	32
Across All Self-Contained Programs	85%	(6%)	57	1.7	(0.1)	57

Weighted by District Weight.

Appendix Table C2.2

Average Pupil/Teacher Ratio and Class Size
of Self-Contained Programs

Programs Serving:	Sample Size	Average Pupil/ Teacher Ratio		Average Class Size	
		mean	(s.e.)	mean	(s.e.)
Learning Disabled	33	13	(1)	13	(1)
Speech Impaired	8	9	(<1)	9	(<1)
Mentally Retarded	51	8	(<1)	8	(<1)
Seriously Emotionally Disturbed	36	9	(<1)	9	(1)
Orthopedically Impaired	22	8	(1)	8	(1)
Multihandicapped	26	5	(1)	6	(1)
Deaf	9	7	(<1)	7	(<1)
Deaf-Blind	3	2	(<1)	2	(<1)
Hard of Hearing	11	4	(1)	6	(<1)
Other Health Impaired	2	8	(na)	8	(na)
Autistic	12	5	(<1)	5	(1)
Visually Handicapped	12	7	(<1)	7	(<1)
Noncategorical Programs	35	10	(1)	10	(1)
Across All Self-Contained Programs	58	9	(1)	9	(1)

Weighted by District Weight.

Appendix Table C2.3

Average Hours Per Week Students Spend in Resource Programs

Program Type:	Mean Hours/Week in Resource Program		
	mean	(s.e.)	n
Learning Disabled	7	(1)	35
Speech Impaired	2	(1)	47
Mentally Retarded	11	(1)	8
Seriously Emotionally Disturbed	5	(2)	10
Orthopedically Impaired	17	(2)	3
Hard of Hearing	4	(1)	25
Visually Handicapped	4	(1)	26
Non-Categorical	10	(1)	33
Across All Resource Programs	6	(1)	187

Weighted by District Weight.

Appendix Table C2.4

Average Caseload* of Resource Programs

Programs Serving:	Sample Size	Average Caseload	
		mean	(s.e.)
Learning Disabled	37	20	(2)
Speech Impaired	55	50	(4)
Mentally Retarded	9	10	(1)
Seriously Emotionally Disturbed	10	16	(5)
Orthopedically Impaired	3	9	(3)
Hard of Hearing	25	12	(3)
Visually Handicapped	27	10	(1)
Noncategorical Programs	34	17	(1)
Across All Resource Programs	60	26	(3)

Weighted by District Weight.

* Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

Appendix Table C2.5

Comparison of Resource Program Caseloads*:
School-Based vs. Itinerant

	School-Based Program			Itinerant Programs		
Programs Type:	n	mean	(s.e.)	n	mean	(s.e.)
Learning Disabled	33	19	(3)	14	25	(5)
Speech Impaired	14	55	(5)	48	47	(5)
Mentally Retarded	8	10	(1)	1	45	(na)
Seriously Emotionally Disturbed	9	9	(2)	2	23	(1)
Orthopedically Impaired	2	7	(1)	1	27	(na)
Hard of Hearing	5	10	(1)	23	13	(3)
Visually Handicapped	5	9	(1)	25	10	(1)
Noncategorical Programs	30	17	(1)	9	16	(2)
Across All Programs	52	21	(2)	53	37	(4)

Weighted by District Weight.

* Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

Appendix Table C2.6

Percent of Districts Offering
School-Based and Itinerant Resource Programs

Handicapping Condition:	School-Based Programs		Itinerant Programs	
	unwtd. n	wtd. %	unwtd. n	wtd. %
Learning Disabled	33	59%	14	23%
Speech Impaired	14	26%	48	70%
Mentally Retarded	8	19%	1	<1%
Seriously Emotionally Disturbed	9	10%	2	10%
Orthopedically Impaired	2	<1%	1	<1%
Hard of Hearing	5	1%	23	31%
Visually Handicapped	5	1%	25	11%
Noncategorical Programs	30	46%	9	2%
Across All Resource Programs	52	86%	53	77%

Weighted by District Weight.

Appendix Table C2.7

Average Caseload* of Special Education Preschool Programs

Type of Program:	Sample Size	Average Class Size/ Caseloads mean	(s.e.)
Ages 0-3/ Home-Based/ 1-5 Hours Per Week	13	24	(7)
Ages 0-3/ School-Based/ 1-5 Hours Per Week	7	16	(7)
Ages 3-5/ School-Based/ 5-15 Hours Per Week	27	16	(2)
Ages 3-5/ School-Based/ Greater Than 15 Hours Per Week	23	6	(1)

Weighted by District Weight.

* Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

Appendix Table C2.8

Average Caseload* of Supplemental Services

Supplemental Service:	Sample Size	Average Caseload mean	(s.e.)
Adaptive Physical Education	37	62	(20)
Occupational Therapy	27	37	(2)
Physical Therapy	22	51	(8)
Speech Language Pathology	56	52	(6)
Psychological Services	25	47	(8)
School Health Services	32	99	(14)
Social Work Services	29	63	(12)
Guidance and Counseling Services	38	64	(8)

Weighted by District Weight.

* Caseload was computed using a full-time equivalent (FTE) estimate of personnel time.

Appendix Table C2.9

Percentage of Special Education Students Receiving Programs and Services by Provider

Program/Service:	Provider				
	District	Co-op	Private	State/Local Agencies	Purchased
Preschool					
Mean	2%	1%	<1%	<1%	<1%
(Standard Error)	(1%)	(1%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Self-Contained					
Mean	21%	4%	1%	2%	<1%
(Standard Error)	(3%)	(1%)	(<1%)	(1%)	(<1%)
Sample Size	60	60	60	60	60
Residential					
Mean	<1%	<1%	<1%	<1%	<1%
(Standard Error)	(<1%)	(<1%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Home/Hospital					
Mean	<1%	<1%	<1%	<1%	<1%
(Standard Error)	(<1%)	(<1%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Resource Program					
Mean	59%	7%	<1%	1%	1%
(Standard Error)	(4%)	(3%)	(<1%)	(<1%)	(<1%)
Sample Size	60	60	60	60	60
Total					
Mean	83%	12%	1%	2%	1%
(Standard Error)	-	-	-	-	-
Sample Size	60	60	60	60	60

Weighted by Handicapped Weight.

Appendix Table C2.10

Percentage of Special Education Students Receiving Special Education by Provider

Handicapping Condition:	Provider				
	District	Co-op	Private	Other*	Total
Learning Disabled					
Mean	89%	8%	2%	2%	100%
(Standard Error)	(4%)	(4%)	(2%)	(1%)	-
Sample Size	60	60	60	60	60
Speech Impaired					
Mean	80%	19%	<1%	1%	100%
(Standard Error)	(5%)	(5%)	(<1%)	(<1%)	-
Sample Size	57	57	57	57	57
Mentally Retarded					
Mean	70%	21%	3%	7%	100%
(Standard Error)	(7%)	(7%)	(1%)	(3%)	-
Sample Size	60	60	60	60	60
Seriously Emotionally Disturbed					
Mean	64%	19%	8%	9%	100%
(Standard Error)	(8%)	(5%)	(3%)	(4%)	-
Sample Size	53	53	53	53	53
Orthopedically Impaired					
Mean	64%	29%	3%	5%	100%
(Standard Error)	(10%)	(9%)	(2%)	(3%)	-
Sample Size	42	42	42	42	42
Multihandicapped					
Mean	45%	27%	12%	16%	100%
(Standard Error)	(8%)	(7%)	(5%)	(5%)	-
Sample Size	45	45	45	45	45
Deaf					
Mean	24%	14%	14%	48%	100%
(Standard Error)	(8%)	(9%)	(11%)	(11%)	-
Sample Size	29	29	29	29	29
Deaf/Blind					
Mean	49%	5%	3%	43%	100%
(Standard Error)	(17%)	(6%)	(3%)	(18%)	-
Sample Size	10	10	10	10	10
Hard of Hearing					
Mean	50%	23%	<1%	27%	100%
(Standard Error)	(10%)	(10%)	(<1%)	(8%)	-
Sample Size	44	44	44	44	44
Other Health Impaired					
Mean	61%	7%	<1%	31%	100%
(Standard Error)	(13%)	(4%)	(<1%)	(15%)	-
Sample Size	27	27	27	27	27
Autistic					
Mean	58%	15%	17%	10%	100%
(Standard Error)	(14%)	(8%)	(15%)	(5%)	-
Sample Size	21	21	21	21	21
Visually Handicapped					
Mean	60%	17%	1%	22%	100%
(Standard Error)	(8%)	(6%)	(1%)	(7%)	-
Sample Size	41	41	41	41	41
Students Not Categorized					
Mean	39%	39%	<1%	23%	100%
(Standard Error)	(9%)	(13%)	(<1%)	(11%)	-
Sample Size	34	34	34	34	34

Weighted by Handicapped Weight.

* Includes State/Local Agencies and Purchased Services.

Appendix Table C2.11

Percentage of Special Education Students
Receiving Supplemental Services from Various Providers

Supplemental Services:	Sample Size	Provider							
		District		Co-op		Purchased Services		Other Providers*	
		mean	(s.e.)	mean	(s.e.)	mean	(s.e.)	mean	(s.e.)
Adaptive Physical Education	40	84%	(7%)	14%	(7%)	1%	(1%)	2%	(2%)
Occupational Therapy	45	32%	(8%)	25%	(8%)	36%	(8%)	7%	(6%)
Physical Therapy	43	29%	(7%)	17%	(6%)	49%	(8%)	6%	(6%)
Speech Language Pathology	56	82%	(5%)	17%	(5%)	<1%	(<1%)	1%	(1%)
Psychological Services	31	76%	(6%)	5%	(3%)	15%	(6%)	3%	(3%)
School Health Services	37	71%	(10%)	5%	(3%)	14%	(6%)	10%	(6%)
Social Work Services	30	71%	(11%)	28%	(11%)	1%	(1%)	<1%	(<1%)
Transportation Services	52	55%	(9%)	3%	(2%)	42%	(9%)	<1%	(<1%)
Guidance and Counseling Svcs.	39	92%	(5%)	6%	(5%)	<1%	(<1%)	1%	(2%)
Assessment	51	92%	(5%)	8%	(5%)	<1%	(<1%)	<1%	(<1%)
Special Vocational	45	64%	(9%)	24%	(8%)	8%	(4%)	4%	(2%)

Weighted by Handicapped Weight.

* Other providers include private schools, state schools, other state agencies, other local agencies, and other public schools.

Appendix Table C2.12

Percntage of Special Education Students
Receiving Programs and Services from Various Providers
by District Size

Provider:	District Size			All Districts
	Small	Medium	Large	
District				
mean	68%	86%	97%	73%
(standard error)	(10%)	(5%)	(1%)	(7%)
sample size	22	16	22	60
Co-op				
mean	28%	8%	1%	22%
(standard error)	(10%)	(4%)	(1%)	(7%)
sample size	22	16	22	60
Private				
mean	1%	2%	1%	1%
(standard error)	(<1%)	(1%)	(<1%)	(<1%)
sample size	22	16	22	60
State/Local Agencies and Purchased Services				
mean	4%	4%	2%	4%
(standard error)	(1%)	(1%)	(1%)	(1%)
sample size	22	16	22	60
All Providers				
mean	100%	100%	100%	100%
(standard error)	(na)	(na)	(na)	(na)
sample size	22	16	22	60

Weighted by District Weight.

Appendix Table C2.13

Percentage of Special Education Students
Receiving Programs and Services from Various Providers
and Metropolitan Status

Provider:	MSA			All Districts
	Rural	Suburban	Center City	
District				
mean	84%	59%	88%	73%
(standard error)	(4%)	(13%)	(6%)	(7%)
sample size	13	24	23	60
Co-op				
mean	12%	36%	6%	22%
(standard error)	(4%)	(13%)	(6%)	(7%)
sample size	13	24	23	60
Private				
mean	1%	1%	1%	1%
(standard error)	(<1%)	(1%)	(<1%)	(<1%)
sample size	13	24	23	60
State/Local Agencies and Purchased Services				
mean	3%	4%	5%	4%
(standard error)	(1%)	(2%)	(3%)	(1%)
sample size	13	24	23	60
All Providers				
mean	100%	100%	100%	100%
(standard error)	n.a.	n.a.	n.a.	n.a.
sample size	13	24	23	60

Weighted by District Weight.

Appendix Table C3.1

Average Total Per-Pupil Expenditure for
Special and Regular Education Programs

	Sample Size	Estimated Expenditure		Interquartile Range	
		mean	(s.e.)	25th percentile	75th percentile
Special Education	60	$3,649	($216)	$2,831	$4,490
Regular Education	58	$2,780	($103)	$2,324	$2,951

Weighted by Handicapped Weight (Special Education), and Total Student Weight (Regular Education).

Appendix Table 3.2

Distribution of Special Education Expenditures by Major Component

Major Component:	Sample Size	Percent of Expenditure		Interquartile Range	
		mean	(s.e.)	25th percentile	75th percentile
Instructional Programs	60	62%	(2%)	55%	72%
Related Serivces	60	10%	(1%)	7%	12%
Assessment	60	13%	(2%)	6%	18%
Administration	60	7%	(1%)	4%	8%
Instructional Support	60	1%	(<1%)	0%	2%
Other Support	60	3%	(<1%)	1%	3%
Transportation	60	4%	(1%)	2%	7%

Weighted by Handicapped Weight.

Appendix Table C3.3

Distribution of Special Education Expenditures by Provider

Provider:	Sample Size	Percent of Expenditures		Interquartile Range	
		mean	(s.e.)	25th percentile	75th percentile
Local Education Agency	60	75%	(4%)	68%	92%
Cooperative Arrangement	60	13%	(4%)	<1%	15%
Private School	60	3%	(1%)	<1%	5%
Other State or Local Agency	60	5%	(1%)	1%	7%
Purchased Services	60	4%	(1%)	<1%	8%

Weighted by Handicapped Weight.

Appendix Table C3.4

Percentage of Special Education Expenditures for Major Components by Provider

Component:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Instructional Programs					
Mean	61%	75%	100%	96%	17%
(Standard Error)	(3%)	(6%)	(<1%)	(2%)	(4%)
Sample Size	58	37	26	50	52
Related Services					
Mean	9%	15%		4%	45%
(Standard Error)	(2%)	(4%)	n.a.	(2%)	(8%)
Sample Size	58	37		50	52
Assessment					
Mean	16%	6%			<1%
(Standard Error)	(3%)	(5%)	n.a.	n.a.	(<1%)
Sample Size	58	37			52
Transportation					
Mean	3%	<1%			37%
(Standard Error)	(1%)	(<1%)	n.a.	n.a.	(8%)
Sample Size	58	37			52
Instructional Support					
Mean	1%				
(Standard Error)	(<1%)	*	n.a.	n.a.	n.a.
Sample Size	58				
Administration					
Mean	6%				
(Standard Error)	(1%)	*	n.a.	n.a.	n.a.
Sample Size	58				
Other Support					
Mean	3%				
(Standard Error)	(<1%)	*	n.a.	n.a.	n.a.
Sample Size	58				

Weighted by Handicapped Weight.

* The percentage for support services in cooperatives cannot be allocated by components of support services because of the way data were collected; across instructional support, administration and other support, cooperatives spend about 4 percent of their special education expenditures.

Appendix Table C3.5

Distribution of Instructional Program Expenditures
Within Districts by Program

Program Type:	Provider				
	Teachers	Aides	Other Practitioners/ Professionals	Administrators	Non-Personnel
Preschool					
Mean	69%	23%	4%	<1%	4%
(Standard Error)	(2%)	(3%)	(2%)	(<1%)	(2%)
Sample Size	28	28	28	28	28
Self-Contained					
Mean	80%	17%	<1%	<1%	2%
(Standard Error)	(2%)	(2%)	(<1%)	(<1%)	(<1%)
Sample Size	51	51	51	51	51
Resource Program					
Mean	76%	7%	15%	<1%	2%
(Standard Error)	(2%)	(2%)	(3%)	(<1%)	(<1%)
Sample Size	52	52	52	52	52
Home/Hospital					
Mean	86%	6%	3%	<1%	5%
(Standard Error)	(5%)	(2%)	(3%)	(<1%)	(4%)
Sample Size	23	23	23	23	23
Supplemental Services					
Mean	31%	2%	55%	2%	10%
(Standard Error)	(4%)	(1%)	(5%)	(1%)	(2%)
Sample Size	54	54	54	54	54
Overall					
Mean	71%	10%	17%	<1%	2%
(Standard Error)	(2%)	(2%)	(2%)	(<1%)	(<1%)
Sample Size	49	49	49	49	49

Weighted by Handicapped Weight.

Appendix Table C3.6

Average Per-Pupil Expenditures for Programs and Supplemental Services

Program Type:	Sample Size	National Average Per Pupil Expenditure	(s.e.)	Interquartile Range	
				25th percentile	75th percentile
Preschool	46	$3,437	($347)	$2,453	$4,548
Self-Contained	55	$4,233	($244)	$3,393	$4,970
Resource Program	60	$1,325	($93)	$905	$1,550
Home/Hospital	36	$3,117	($301)	$1,694	$3,697
Residential	35	$28,324	($3,539)	$17,635	$33,911
Vocational Education Programs	45	$1,444	($198)	$842	$1,767
Related Services Direct & Consultant	56	$592	($35)	$417	$764
Adaptive Physical Education	38	$615	($83)	$300	$999
Assessment	60	$1,206	($81)	$553	$1,427
Transportation	52	$1,583	($163)	$942	$1,835

Weighted by Handicapped Weight.

Appendix Table C3.7

Average Per-Pupil Expenditures for Types of Special Education Programs by Provider

Program Type:	Provider					
	District	Co-op	Private	Other External Assignments	Purchased	National Estimates
Preschool						
Mean	$3,611	$3,063	$4,700	$4,964	$2,943	$3,437
(Standard Error)	($310)	($726)	(na)	($1,049)	($1,495)	($347)
Sample Size	29	17	1	10	2	46
Self-Contained						
Mean	$3,680	$6,112	$9,267	$5,708		$4,233
(Standard Error)	($198)	($678)	($1,300)	($491)	n.a.	($244)
Sample Size	52	30	23	37		55
Resource Program						
Mean	$1,356	$1,605		$2,398	$1,689	$1,325
(Standard Error)	($96)	($328)	n.a.	($823)	($424)	($93)
Sample Size	54	19		11	8	60
Home/Hospital						
Mean	$3,996	$3,231	$4,216	$994	$2,052	$3,117
(Standard Error)	($350)	($298)	($1,432)	(na)	($382)	($301)
Sample Size	23	2	3	2	11	36
Residential						
Mean			$31,616	$28,304		$28,324
(Standard Error)	n.a.	n.a.	($5,375)	($3,941)	n.a.	($3,539)
Sample Size			16	27		35

Weighted by Handicapped Weight.

Appendix Table C3.8

Average Per-Pupil Expenditures For Selected Special Education Programs Provided by Private Schools

Program Type:	Sample Size	Average Expenditures	
		mean	(s.e.)
Home/Hospital Programs	3	$4,216	($1,694)
Day Programs	23	$9,141	($1,368)
Residential Programs	16	$31,616	($5,565)
Day, Home/Hospital, And Residential Programs	26	$13,266	($2,290)

Weighted by Handicapped Weight.

Appendix Table C3.9

Average Per-Pupil Expenditures for Supplemental Services by Provider

Service Type:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Vocational Education Programs					
Mean	$1,150	$1,865	$4,742	$1,381	$2,012
(Standard Error)	($123)	($659)	($566)	($532)	($345)
Sample Size	29	15	2	5	6
Adaptive Physical Education					
Mean	$616	$667	$987	$492	$207
(Standard Error)	($88)	($232)	(na)	(na)	(na)
Sample Size	29	9	1	1	1
Assessment					
Mean	$1,273	$978			
(Standard Error)	($89)	($253)	n.a.	n.a.	n.a.
Sample Size	48	12			
Transportation					
Mean	$1,688	$1,463			$1,429
(Standard Error)	($152)	($196)	n.a.	n.a.	($275)
Sample Size	34	5			30
Related Services Direct & Consultant					
Mean	$554	$673	$2,061	$1,099	$1,092
(Standard Error)	($43)	($73)	($53)	($363)	($234)
Sample Size	49	22	2	17	40
Occupational Therapy					
Mean	$990	$772		$1,272	$920
(Standard Error)	($91)	($143)	n.a.	($159)	($111)
Sample Size	17	8		5	19
Physical Therapy					
Mean	$1,003	$1,055		$1,450	$1,077
(Standard Error)	($137)	($230)	n.a.	(na)	($273)
Sample Size	16	6		4	26
Speech Language Pathology					
Mean	$641	$749	$1,964	$468	$503
(Standard Error)	($61)	($81)	($32)	($39)	($184)
Sample Size	43	18	2	2	2
Psychological Services					
Mean	$870	$1,511		$835	$802
(Standard Error)	($108)	($337)	n.a.	(na)	($84)
Sample Size	23	3		2	8
School Health Services					
Mean	$298	$545		$315	$227
(Standard Error)	($56)	($94)	n.a.	($112)	($66)
Sample Size	26	4		3	5
Social Work Services					
Mean	$846	$687		$1,768	$1,800
(Standard Error)	($130)	($146)	n.a.	(na)	(na)
Sample Size	21	7		1	1
Guidance and Counseling Services					
Mean	517	719	$2,100	$625	
(Standard Error)	($47)	($36)	(na)	(na)	n.a.
Sample Size	33	6	1	1	

Weighted by Handicapped Weight.

Appendix Table C3.10

Average Per-Pupil Expenditures for Special Education Programs by Individual Handicapping Conditions and Program Type

Handicapping Condition:	Program Type		
	Pre-school	Self-contained	Resource
Speech Impaired			
Mean	$3,062	$7,140	$647
(Standard Error)	($672)	($1,101)	($58)
Sample Size	8	11	55
Mentally Retarded			
Mean	$3,983	$4,754	$2,290
(Standard Error)	($812)	($478)	($320)
Sample Size	12	55	9
Orthopedically Impaired			
Mean	$4,702	$5,248	$3,999
(Standard Error)	($642)	($324)	($710)
Sample Size	6	26	4
Multihandicapped			
Mean	$5,400	$6,674	
(Standard Error)	($1,000)	($584)	n.a.
Sample Size	8	33	
Learning Disabled			
Mean	$3,708	$3,083	$1,643
(Standard Error)	($779)	($237)	($133)
Sample Size	5	36	38
Seriously Emotionally Disturbed			
Mean	$4,297	$4,857	$2,620
(Standard Error)	($937)	($321)	($350)
Sample Size	7	43	13
Deaf			
Mean	$5,771	$7,988	
(Standard Error)	($723)	($1,471)	n.a.
Sample Size	3	23	
Deaf-Blind			
Mean		$20,416	
(Standard Error)	n.a.	($2,477)	n.a.
Sample Size		3	
Hard of Hearing			
Mean	$4,583	$6,058	$3,372
(Standard Error)	($554)	($515)	($255)
Sample Size	10	25	30
Other Health Impaired			
Mean	$3,243	$4,782	
(Standard Error)	($648)	($1,923)	n.a.
Sample Size	2	3	
Autistic			
Mean	$6,265	$7,582	
(Standard Error)	($1,782)	($842)	n.a.
Sample Size	3	15	
Visually Impaired			
Mean	$4,068	$6,181	$3,395
(Standard Error)	($735)	($643)	($311)
Sample Size	8	15	31
Non-Categorical			
Mean	$3,686	$3,684	$1,731
(Standard Error)	($319)	($335)	($181)
Sample Size	36	35	37

Weighted by Handicapped Weight.

Appendix Table C3.11

Average Per-Pupil Expenditures in Self-Contained Programs for Selected Handicapping Conditions by Provider

Handicapping Condition:	Provider			
	District	Co-op	Private	State/Local Agency
Learning Disabled				
Mean	$3,101	$2,985	$8,107	$4,792
(Standard Error)	($217)	($772)	($2,225)	($526)
Sample Size	29	6	6	3
Speech Impaired				
Mean	$5,033	$6,736	$9,222	$7,997
(Standard Error)	($980)	($1,684)	($2,088)	n.a.
Sample Size	6	3	2	1
Mentally Retarded				
Mean	$3,993	$5,703	$9,091	$4,083
(Standard Error)	($313)	($813)	($1,551)	($343)
Sample Size	41	17	15	18
Seriously Emotionally Disturbed				
Mean	$4,567	$5,420	$6,359	$6,813
(Standard Error)	($357)	($778)	($721)	($2,051)
Sample Size	30	12	14	10
Orthopedically Impaired				
Mean	$4,844	$5,924	$9,513	$3,308
(Standard Error)	($366)	($424)	($2,288)	($973)
Sample Size	13	9	3	4
Multiply Handicapped				
Mean	$7,341	$7,467	$7,973	$4,843
(Standard Error)	($565)	($790)	($879)	($503)
Sample Size	18	14	11	10
Deaf				
Mean	$5,915	$8,690	$13,954	$5,077
(Standard Error)	($493)	($664)	($1,310)	($665)
Sample Size	6	6	4	10
Hard Of Hearing				
Mean	$4,652	$7,788	$11,618	$5,901
(Standard Error)	($437)	($641)	($938)	($521)
Sample Size	9	4	2	13
Autistic				
Mean	$7,447	$7,812	$13,351	$7,927
(Standard Error)	($972)	($1,639)	($1,530)	($3,986)
Sample Size	11	2	2	2
Visually Handicapped				
Mean	$5,486	$8,453	$16,200	$5,582
(Standard Error)	($186)	($2,177)	(na)	(na)
Sample Size	11	3	1	1

Weighted by Handicapped Weight.

Appendix Table C3.12

Average Per-Pupil Expenditures in Resource Programs for Selected Handicapping Conditions by Provider

Program/Service:	Provider			
	District	Co-op	State/Local Agency	Purchased
Learning Disabled				
Mean	$1,677	$1,597	$2,476	$786
Standard Error	($157)	($109)	(na)	(na)
Sample Size	33	4	1	2
Speech Impaired				
Mean	$658	$719		$299
Standard Error	($65)	($88)	n.a.	($22)
Sample Size	43	15		2
Mentally Retarded				
Mean	$2,322	$2,069		
Standard Error	($259)	(na)	n.a.	n.a.
Sample Size	8	1		
Seriously Emotionally Disturbed				
Mean	$2,715	$2,254	$2,841	
Standard Error	($266)	($982)	($992)	n.a.
Sample Size	8	3	3	
Hard Of Hearing				
Mean	$3,524	$2,867	$3,733	$2,760
Standard Error	($276)	($798)	($341)	(na)
Sample Size	17	8	4	1
Visually Handicapped				
Mean	$3,594	$3,586	$3,533	$1,851
Standard Error	($360)	($592)	($355)	($437)
Sample Size	21	7	2	5
Orthopedically Impaired				
Mean	$3,772	$6,210		
Standard Error	$822	(na)	n.a.	n.a.
Sample Size	3	1		
Non-Categorical				
Mean	$1,842	$2,181	$1,358	$1,975
Standard Error	($128)	($538)	($986)	($85)
Sample Size	30	4	2	2

Weighted by Handicapped Weight.

Appendix Table C3.13

Average Per-Pupil Expenditures for Selected Programs and Supplementary Services by Income Level of School District

Program/Service:	Income Level* Lower one-third	Middle one-third	Upper one-third
Preschool			
Mean	$4,806	$2,994	$2,904
(Standard Error)	($664)	($626)	($619)
Sample Size	13	14	20
Self-Contained			
Mean	$4,024	$4,022	$4,953
(Standard Error)	($397)	($476)	($608)
Sample Size	16	20	23
Resource Program			
Mean	$1,291	$1,078	$1,545
(Standard Error)	($165)	($127)	($180)
Sample Size	16	21	23
Home/Hosptial			
Mean	$1,806	$3,044	$2,539
(Standard Error)	($187)	($394)	($656)
Sample Size	10	11	15
Residential			
Mean	$23,797	$19,484	$39,794
(Standard Error)	($1,910)	($2,945)	($5,646)
Sample Size	10	11	14
Vocational Programs			
Mean	$2,981	$1,546	$1,115
(Standard Error)	($394)	($157)	($143)
Sample Size	12	13	20
Related Services			
Mean	$576	$594	$789
(Standard Error)	($89)	($63)	($127)
Sample Size	16	21	23
Assessment			
Mean	$1,161	$1,008	$1,051
(Standard Error)	($257)	($196)	($175)
Sample Size	14	15	22
Transportation			
Mean	$1,700	$1,556	$1,232
(Standard Error)	($237)	($347)	($324)
Sample Size	14	15	23
Adaptive Physical Education			
Mean	$1,254	$394	$646
(Standard Error)	($361)	($78)	($129)
Sample Size	12	13	16

Weighted by District Weight.

* Income level is based on U.S. Census data on school districts in the STF3F file.

Appendix Table C3.14

Average Per-Pupil Expenditures for Selected Programs and Supplementary Services by District Size

Program/Service:	District Size*		
	Small	Medium	Large
Preschool			
Mean	$3,353	$2,795	$3,168
(Standard Error)	($608)	($244)	($582)
Sample Size	20	11	16
Self-Contained			
Mean	$4,613	$4,695	$3,306
(Standard Error)	($616)	($561)	($328)
Sample Size	22	15	22
Resource Program			
Mean	$1,322	$1,271	$1,968
(Standard Error)	($175)	($167)	($377)
Sample Size	22	16	22
Home/Hospital			
Mean	$2,982	$1,593	$2,514
(Standard Error)	($665)	($62)	($723)
Sample Size	14	8	14
Residential			
Mean	$32,894	$25,734	$35,574
(Standard Error)	($7,996)	($922)	($6,736)
Sample Size	14	8	13
Vocational Programs			
Mean	$1,282	$2,395	$2,065
(Standard Error)	($265)	($431)	($357)
Sample Size	19	11	15
Related Services			
Mean	$701	$660	$449
(Standard Error)	($110)	($89)	($89)
Sample Size	22	16	22
Assessment			
Mean	$1,244	$1,075	$857
(Standard Error)	($143)	($225)	($112)
Sample Size	20	13	18
Transportation			
Mean	$1,290	$1,596	$1,887
(Standard Error)	($147)	($417)	($311)
Sample Size	20	13	19
Adaptive Physical Education			
Mean	$495	$1,218	$505
(Standard Error)	($157)	($368)	($62)
Sample Size	16	11	14

Weighted by District Weight.

* District Size was defined as follows:
  Small = 2,745 students or fewer
  Medium = between 2,745 and 9,567 students
  Large = 9,568 students or more

Appendix Table C3.15

Average Per-Pupil Expenditures for Selected Programs and Supplementary Services by Metropolitan Status

Program/Service:	MSA		
	Rural	Suburban	Center City
Preschool			
Mean	$2,861	$3,363	$3,495
(Standard Error)	($732)	($614)	($573)
Sample Size	12	17	18
Self-Contained			
Mean	$5,258	$3,975	$3,445
(Standard Error)	($760)	($413)	($390)
Sample Size	13	23	23
Resource Program			
Mean	$1,383	$1,247	$1,588
(Standard Error)	($210)	($108)	($389)
Sample Size	13	24	23
Home/Hospital			
Mean	$2,853	$2,241	$2,543
(Standard Error)	($852)	($440)	($721)
Sample Size	8	13	15
Residential			
Mean	$24,921	$35,442	$33,208
(Standard Error)	($5,339)	($8,468)	($6,781)
Sample Size	8	13	14
Vocational Programs			
Mean	$1,162	$1,865	$2,050
(Standard Error)	($143)	($516)	($353)
Sample Size	12	17	16
Related Services			
Mean	$737	$668	$396
(Standard Error)	($132)	($63)	($39)
Sample Size	13	24	23
Assessment			
Mean	$924	$1,198	$970
(Standard Error)	($137)	($208)	($131)
Sample Size	12	20	19
Transportation			
Mean	$1,096	$1,534	$1,854
(Standard Error)	($223)	($304)	($235)
Sample Size	12	20	20
Adaptive Physical Education			
Mean	$261	$1,206	$506
(Standard Error)	($60)	($337)	($61)
Sample Size	10	16	15

Weighted by District Weight.

Appendix Table C3.16

Average Per-Pupil Expenditures for Selected Programs and Supplementary Services by Very Large, Large, and Other Districts*

Program/Service:	Very Large Districts	Large Districts	Other Districts
Preschool			
Mean	$3,469	$1,786	$3,282
(Standard Error)	($601)	($531)	($475)
Sample Size	6	3	38
Self-Contained			
Mean	$2,306	$3,242	$4,558
(Standard Error)	($256)	($60)	($462)
Sample Size	6	4	49
Resource Program			
Mean	$1,460	$1,482	$1,339
(Standard Error)	($112)	($80)	($139)
Sample Size	6	4	50
Home/Hospital			
Mean	$1,608	$6,473	$2,541
(Standard Error)	($674)	($2,557)	($330)
Sample Size	4	3	29
Residential			
Mean	$20,744	$30,337	$32,821
(Standard Error)	($2,228)	($744)	($5,593)
Sample Size	3	3	29
Vocational Programs			
Mean	$1,711	$2,359	$1,678
(Standard Error)	($202)	($129)	($315)
Sample Size	5	3	37
Related Services			
Mean	$639	$625	$680
(Standard Error)	($43)	($88)	($82)
Sample Size	6	4	50
Assessment			
Mean	$2,028	$484	$1,104
(Standard Error)	($462)	($75)	($128)
Sample Size	6	3	42
Transportation			
Mean	$2,485	$2,426	$1,411
(Standard Error)	($201)	($1,477)	($151)
Sample Size	6	4	42
Adaptive Physical Education			
Mean	$546	$361	$1,015
(Standard Error)	($21)	($18)	($297)
Sample Size	4	3	34

Weighted by District Weight.

* Very Large Districts exceed 83,800 enrollment, Large Districts' enrollments are between 40,700 and 66,500, and enrollments in Other Districts are less than 40,000.

Appendix Table C4.1

Distribution of Regular Education Expenditures
by Major Component

Component:	Sample Size	Estimated Percent of Expenditures		Interquartile Range	
		mean	(s.e.)	25th percentile	75th percentile
Instructional Programs	60	54%	(2%)	48%	57%
Pupil Services	60	3%	(<1%)	2%	3%
Transportation	57	8%	(1%)	5%	9%
Support Services:					
Instruction	59	3%	(1%)	2%	3%
Administration	59	10%	(1%)	8%	12%
Other Support	60	22%	(2%)	16%	26%

Weighted by Total Student Weight.

Appendix Table C4.2

Average Per-Pupil Expenditure
for Regular and Special Education

Resource Programs:	Sample Size	Estimated Expenditure	
		mean	(s.e.)
Special Education	60	$2,463	($181)
Regular Education Allocated to Special Education	58	$2,780	($103)
Combined Special and Regular Education	58	$5,243	(na)
Self-Contained Programs:			
Special Education	55	$5,566	($350)
Regular Education Allocated to Special Education	58	$1,347	($91)
Combined Special and Regular Education	55	$6,913	(na)
Preschool Programs:			
Special Education	46	$4,750	($453)
Regular Education Allocated to Special Education	58	$973	($72)
Combined Special and Regular Education	46	$5,723	(na)
Residential Programs:			
Special Education	35	$29,108	($3,606)
Regular Education Allocated to Special Education	58	$389	($37)
Combined Special and Regular Education	35	$29,497	(na)
All Programs:			
Special Education	60	$3,649	($216)
Regular Education Allocated to Special Education	58	$2,686	($99)
Combined Special and Regular Education	58	$6,335	(na)

Weighted by Handicapped Weight.

Appendix Table C4.3

Total Cost of Educating Handicapped Students:
Excess Costs by Student Placement

Student Placement:	Sample Size	Per-Pupil Excess Cost	
		mean	(s.e.)
Resource Programs	58	$2,463	($181)
Self-Contained Programs	55	$4,133	($260)
Preschool Programs	46	$2,943	($281)
Residential Programs	35	$26,717	($3,310)
All Programs	58	$3,555	($210)

Weighted by Handicapped Weight (Special Education Portion) and Total Student Weight (Regular Education Portion).

Appendix Table C4.4

Average Per-Pupil Expenditures for Special Education
by Program Type, Provider and Handicapping Condition

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Self-Contained-- Learning Disabled					
Mean	$3,101	$2,985	$8,107	$4,792	
(Standard Error)	($217)	($772)	($2,225)	($526)	n.a.
Sample Size	29	6	6	3	
Self-Contained-- Speech Impaired					
Mean	$5,033	$6,736	$9,222	$7,997	
(Standard Error)	($980)	($1,684)	($2,088)	(na)	n.a.
Sample Size	6	3	2	1	
Self-Contained-- Mentally Retarded					
Mean	$3,993	$5,703	$9,091	$4,083	
(Standard Error)	($313)	($813)	($1,551)	($343)	n.a.
Sample Size	41	17	15	18	
Self-Contained-- Seriously Emotionally Disturbed					
Mean	$4,567	$5,420	$6,359	$6,813	
(Standard Error)	($357)	($778)	($721)	($2,051)	n.a.
Sample Size	30	12	14	10	
Self-Contained-- Orthopedically Impaired					
Mean	$4,844	$5,924	$9,513	$3,308	
(Standard Error)	($366)	($424)	($2,288)	($973)	n.a.
Sample Size	13	9	3	4	
Self-Contained-- Multiply Handicapped					
Mean	$7,341	$7,467	$7,973	$4,843	
(Standard Error)	($565)	($790)	($879)	($503)	n.a.
Sample Size	18	14	11	10	
Self-Contained-- Deaf					
Mean	$5,915	$8,690	$13,954	$5,077	
(Standard Error)	($493)	($664)	($1,310)	($665)	n.a.
Sample Size	6	6	4	10	
Self-Contained-- Hard Of Hearing					
Mean	$4,652	$7,788	$11,618	$5,901	
(Standard Error)	($437)	($641)	($938)	($521)	n.a.
Sample Size	9	4	2	13	
Self-Contained-- Autistic					
Mean	$7,447	$7,812	$13,351	$7,927	
(Standard Error)	($972)	($1,639)	($1,530)	($3,986)	n.a.
Sample Size	11	2	2	2	
Self-Contained-- Visually Handicapped					
Mean	$5,486	$8,453	$16,200	$5,582	
(Standard Error)	($186)	($2,177)	(na)	(na)	n.a.
Sample Size	11	3	1	1	
Self-Contained-- Non-Categorical					
Mean	$3,601	$5,309	$9,514	$3,621	
(Standard Error)	($308)	($1,080)	($1,274)	($1,320)	n.a.
Sample Size	32	14	10	6	

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Resource Programs-- Learning Disabled					
Mean	$1,677	$1,597		$2,476	$786
Standard Error	($157)	($109)	n.a.	(na)	(na)
Sample Size	33	4		1	2
Resource Programs-- Speech Impaired					
Mean	$658	$719			$299
Standard Error	($65)	($88)	n.a.	n.a.	($22)
Sample Size	43	15			2
Resource Programs-- Mentally Retarded					
Mean	$2,322	$2,069			
Standard Error	($259)	(na)	n.a.	n.a.	n.a.
Sample Size	8	1			
Resource Programs-- Seriously Emotionally Disturbed					
Mean	$2,715	$2,254		$2,841	
Standard Error	($266)	($982)	n.a.	($992)	n.a.
Sample Size	8	3		3	
Resource Programs-- Orthopedically Impaired					
Mean	$3,772	$6,210			
Standard Error	$822	(na)	n.a.	n.a.	n.a.
Sample Size	3	1			
Resource Programs-- Hard Of Hearing					
Mean	$3,524	$2,867		$3,733	$2,760
Standard Error	($276)	($798)	n.a.	($341)	(na)
Sample Size	17	8		4	1
Resource Programs-- Visually Handicapped					
Mean	$3,594	$3,586		$3,533	$1,851
Standard Error	($360)	($592)	n.a.	($355)	($437)
Sample Size	21	7		2	5
Resource Programs-- Non-Categorical					
Mean	$1,842	$2,181		$1,358	$1,975
Standard Error	($128)	($538)	n.a.	($986)	($85)
Sample Size	30	4		2	2
Resource Programs-- School-Based (All Handicapping Conditions)					
Mean	$1,634	$1,916		$1,921	$1,323
Standard Error	($132)	($401)	n.a.	($990)	($464)
Sample Size	48	8		7	3
Resource Programs-- Itinerant (All Handicapping Conditions)					
Mean	$1,158	$1,560		$3,353	$1,537
Standard Error	($175)	($340)	n.a.	($411)	($428)
Sample Size	42	16		4	8
Preschool-- Speech Impaired					
Mean	$3,879	$953			
(Standard Error)	($280)	($233)	n.a.	n.a.	n.a.
Sample Size	5	3			

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Preschool-- Mentally Retarded					
Mean	$4,656	$1,872		$3,194	$8,898
(Standard Error)	($818)	($1,099)	n.a.	($1,699)	(na)
Sample Size	7	2		2	1
Preschool-- Orthopedically Impaired					
Mean	$4,483	$5,309			
(Standard Error)	($888)	(na)	n.a.	n.a.	n.a.
Sample Size	4	2			
Preschool-- Multiply Handicapped					
Mean	$6,548	$3,778	$2,100	$7,542	
(Standard Error)	($965)	($627)	(na)	($3,097)	n.a.
Sample Size	4	2	1	2	
Preschool-- Learning Disabled					
Mean	$3,708				
(Standard Error)	($779)	n.a.	n.a.	n.a.	n.a.
Sample Size	5				
Preschool-- Seriously Emotionally Disturbed					
Mean	$3,909	$8,091			$2,957
(Standard Error)	($903)	(na)	n.a.	n.a.	(na)
Sample Size	5	1			1
Preschool-- Deaf					
Mean	$5,366	$8,564		$5,136	
(Standard Error)	(na)	(na)	n.a.	(na)	n.a.
Sample Size	1	1		1	
Preschool-- Hard Of Hearing					
Mean	$5,406	$5,053		$5,588	
(Standard Error)	($811)	($647)	n.a.	(na)	n.a.
Sample Size	10	2		3	
Preschool-- Other Health Impaired					
Mean	$3,243				
(Standard Error)	($648)	n.a.	n.a.	n.a.	n.a.
Sample Size	2				
Preschool-- Autistic					
Mean	$6,265				
(Standard Error)	($1,782)	n.a.	n.a.	n.a.	n.a.
Sample Size	3				
Preschool-- Visually Handicapped					
Mean	$4,147	$866			
(Standard Error)	($706)	(na)	n.a.	n.a.	n.a.
Sample Size	8	1			
Preschool-- Non-Categorical					
Mean	$3,785	$3,160	$6,000	$5,171	$694
(Standard Error)	($290)	($717)	(na)	($1,034)	(na)
Sample Size	25	10	1	2	1

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Preschool--0-2 Years (All Handicapping Conditions)					
Mean	$3,894	$2,589		$4,916	$694
(Standard Error)	($1,197)	($979)	n.a.	($1,069)	(na)
Sample Size	9	9		5	1
Preschool--3-5 Years (All Handicapping Conditions)					
Mean	$3,796	$4,254	$4,700	$5,301	$4,937
(Standard Error)	($309)	($804)	(na)	($1,112)	(na)
Sample Size	30	16	1	8	1
Home-Based Programs (All Handicapping Conditions)					
Mean	$3,216	$2,915	$4,216	$994	$2,189
(Standard Error)	($464)	(na)	($1,439)	(na)	($543)
Sample Size	12	1	3	2	4
Hospital-Based Programs (All Handicapping Conditions)					
Mean	$4,099	$3,608			$1,973
(Standard Error)	($540)	(na)	n.a.	n.a.	($362)
Sample Size	19	1			9
Residential (All Handicapping Conditions)					
Mean			$31,616	$28,304	
(Standard Error)	n.a.	n.a.	($5,375)	($3,941)	n.a.
Sample Size			16	27	
Special Vocational-- (All Handicapping Conditions)					
Mean	$1,150	$1,865	$4,742	$1,381	$2,012
(Standard Error)	($123)	($659)	($566)	($532)	($345)
Sample Size	29	15	2	5	6
Special Vocational-- Resource Program 5-15 Hours per Week (All Handicapping Conditions)					
Mean	$1,544	$2,399		$3,200	$1,724
(Standard Error)	($190)	($524)	n.a.	(na)	($679)
Sample Size	20	11		1	2
Special Vocational-- Resource Program 0-5 Hours per Week (All Handicapping Conditions)					
Mean	$595	$144		$2,942	
(Standard Error)	($160)	($6)	n.a.	(na)	n.a.
Sample Size	10	2		1	
Special Vocational-- Work Study (All Handicapping Conditions)					
Mean	$1,595	$1,505			$4,383
(Standard Error)	($306)	($347)	n.a.	n.a.	(na)
Sample Size	16	6			1

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Special Vocational--Rehabilitation Counseling (All Handicapping Conditions)					
Mean	$426	$768		$545	
(Standard Error)	($18)	(na)	n.a.	($246)	n.a.
Sample Size	4	1		3	
Special Vocational--Job Coaching (All Handicapping Conditions)					
Mean	$1,632				$1,102
(Standard Error)	$604	n.a.	n.a.	n.a.	($220)
Sample Size	8				3
Special Transportation (All Handicapping Conditions)					
Mean	$1,688	$1,463			$1,429
(Standard Error)	($152)	($196)	n.a.	n.a.	($275)
Sample Size	34	5			30
Assessment (All Handicapping Conditions)					
Mean	$1,273	$978			
(Standard Error)	($93)	($259)	n.a.	n.a.	n.a.
Sample Size	48	12			
Adaptive Physical Education (All Handicapping Conditions)					
Mean	$616	$669	$987	$492	$207
(Standard Error)	($88)	($232)	(na)	(na)	(na)
Sample Size	29	9	1	1	1
Related Service--Occupational Therapy					
Mean	$990	$772		$1,272	$920
(Standard Error)	($91)	($143)	n.a.	($159)	($111)
Sample Size	17	8		5	19
Related Service--Physical Therapy					
Mean	$1,003	$1,055		$1,450	$1,077
(Standard Error)	($137)	($230)	n.a.	(na)	($273)
Sample Size	16	6		4	26
Related Service--Speech Language Pathology					
Mean	$641	$749	$1,964	$468	$503
(Standard Error)	($61)	($81)	($32)	($39)	($184)
Sample Size	43	18	2	2	2
Related Service--Psychological Services					
Mean	$870	$1,511		$835	$802
(Standard Error)	($108)	($337)	n.a.	(na)	($84)
Sample Size	23	3		2	8
Related Service--School Health Services					
Mean	$298	$545		$315	$227
(Standard Error)	($56)	($94)	n.a.	($112)	($66)
Sample Size	26	4		3	5

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Related Service-- Social Work Services					
Mean	$846	$687		$1,768	$1,800
(Standard Error)	($130)	($146)	n.a.	(na)	(na)
Sample Size	21	7		1	1
Related Service-- Guidance and Counseling Services					
Mean	$517	$719	$2,100	$625	
(Standard Error)	($47)	($36)	(na)	(na)	n.a.
Sample Size	33	6	1	1	
Related Service-- Adaptive Driver's Education					
Mean	$1,246	$816			
(Standard Error)	($156)	(na)	n.a.	n.a.	n.a.
Sample Size	5	3			
Related Service-- Art Therapy					
Mean			$23		
(Standard Error)	n.a.	n.a.	(na)	n.a.	n.a.
Sample Size			1		
Related Service-- Audiology					
Mean	$391	$459			$306
(Standard Error)	($78)	($77)	n.a.	n.a.	($91)
Sample Size	9	6			3
Related Service-- Braillists, Readers, Notetakers					
Mean	$1,668	$266		$807	$1,389
(Standard Error)	($530)	($182)	n.a.	(na)	($151)
Sample Size	6	2		1	3
Related Service-- Food Service Aide					
Mean	$646				
(Standard Error)	($474)	n.a.	n.a.	n.a.	n.a.
Sample Size	2				
Related Service-- Interpretive Services					
Mean	$2,882			$3,329	$3,659
(Standard Error)	($321)	n.a.	n.a.	(na)	($969)
Sample Size	10			1	4
Related Service-- Media Services					
Mean	$258				
(Standard Error)	(na)	n.a.	n.a.	n.a.	n.a.
Sample Size	1				
Related Service-- Music Therapy					
Mean	$588	$36			$40
(Standard Error)	($149)	(na)	n.a.	n.a.	(na)
Sample Size	5	1			1
Related Service-- Orientation and Mobility					
Mean	$1,946	$1,794		$1,304	$943
(Standard Error)	($302)	($364)	n.a.	($98)	($265)
Sample Size	12	4		2	3

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Appendix Table C4.4
(continued)

Program Type/ Handicapping Condition:	Provider				
	District	Co-op	Private	State/Local Agency	Purchased
Related Service-- Parent Counseling					
Mean	$463		$2,100		$614
(Standard Error)	($212)	n.a.	(na)	n.a.	($79)
Sample Size	3		1		2
Related Service-- Psychiatric Services					
Mean				$1,693	$1,197
(Standard Error)	n.a.	n.a.	n.a.	(na)	($388)
Sample Size				1	8
Related Service-- Recreation Services					
Mean	$36	$41		$550	
(Standard Error)	($2)	(na)	n.a.	(na)	n.a.
Sample Size	4	1		1	
Related Service-- Transition Services/ Placement					
Mean	$715	$620			
(Standard Error)	($173)	(na)	n.a.	n.a.	n.a.
Sample Size	7	1			
Related Service-- Direct Counseling					
Mean	$2,577		$1,766		$1,016
(Standard Error)	($1,400)	n.a.	(na)	n.a.	(na)
Sample Size	3		1		1
Related Service-- Attendants					
Mean	$3,536		$3,308	$7,629	$6,029
(Standard Error)	($2,140)	n.a.	(na)	(na)	($1,784)
Sample Size	7		1	1	5

Weighted by Handicapped Weight.

Appendix Table C5.1

Distribution of Federal (EHA-B) Special Education Expenditures by Special Education Category

Special Education Category:	Sample Size	Percentage of Federal Funds	
		mean	(s.e.)
Overall Programs and Supplemental Services*	57	79%	(4%)
Support Services	57	21%	(1%)
Total	-	100%	-

Weighted by Handicapped Weight.

* The Programs and Supplemental Services total was multiplied by the following estimates for individual program types to yield the percentages cited in the text:

Program/Service:	Sample Size	Percentage of Federal (EHA-B) Expenditures	
		mean	(s.e.)
Self-Contained	53	34%	(5%)
Resource Program	53	33%	(8%)
Instructional Programs and Services**	53	15%	(5%)
Supplemental Services	53	19%	(4%)
Total	-	100%	-

Weighted by Handicapped Weight.

** Includes preschool, residential, home/hospital, and all supplemental services.

Appendix Table C5.2

Federal (EHA-B) Percent of
Within District Special Education Expenditures
by Expenditure Component

Expenditure Component:	Sample Size	Federal (EHA-B) Percent of Expenditures		Interquartile Range	
		mean	(s.e.)	25th percentile	75th percentile
Instructional Programs and Supplemental Services	60	5%	(1%)	2%	6%
Support Services	60	17%	(4%)	1%	20%
Total	60	6%	(1%)	3%	7%

Weighted by Handicapped Weight.

Appendix Table C5.3

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Type of Program or Service

Program Type:	Sample Size	Percent of Expenditures	
		mean	(s.e.)
Preschool	46	8%	(3%)
Self-Contained	59	7%	(1%)
Resource Program	60	4%	(1%)
Home/Hospital	36	2%	(2%)
Residential	35	<1%	(<1%)
Vocational	45	8%	(5%)
Related Services	59	11%	(3%)
Assessment	50	6%	(2%)
Transportation	52	2%	(1%)
All Programs and Supplemental Services	60	5%	(1%)

Weighted by Handicapped Weight.

Appendix Table C5.4

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Type of Program or Service (Programs Receiving EHA-B Funds Only)

Program Type:	Sample Size	Percent of Expenditures	
		mean	(s.e.)
Preschool	20	30%	(8%)
Self-Contained	45	17%	(3%)
Resource Program	34	19%	(4%)
Home/Hospital	5	16%	(7%)
Residential	1	20%	(na)
Vocational	9	36%	(13%)
Related Services	40	47%	(7%)
Assessment	26	11%	(3%)
Transportation	9	24%	(11%)
All Programs and Supplemental Services	56	20%	(3%)

Weighted by Handicapped Weight.

Appendix Table C5.5

Distribution of Federal (EHA-B)
Special Education Expenditures by
Age Level of Program

Program/Service:	Sample Size	Percent of Federal (EHA-B) Expenditures	
		mean	(s.e.)
Preschool (0-5)	42	9%	(4%)
Self-Contained and Resource Programs (Ages 5-21)	42	84%	(6%)
Other*	42	7%	(4%)
Total	-	100%	-

Weighted by District Weight.

* Includes residential, special vocational, and home/hospital programs.

Appendix Table C5.6

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Program Age Level

Program Age Level:	Sample Size	Federal (94-142) Percent of Expenditures	
		mean	(s.e.)
Infant	21	19%	(11%)
Preschool/Early Childhood	43	8%	(3%)
Ages 5-21 (Self-Contained and Resource Programs)	60	5%	(1%)
Other*	53	3%	(2%)
All Programs	60	5%	(1%)

Weighted by Handicapped Weight.

* Includes residential, home/hospital and special vocational programs which could not be separated into age categories.

Appendix Table C5.7

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Service Provider

Provider:	Sample Size	Federal (EHA-B) Percent of Total Expenditures	
		mean	(s.e.)
District	58	5%	(1%)
Co-op	29	6%	(2%)
Private	26	2%	(1%)
Other State or Local Agency	50	<1%	(<1%)
Purchased Service	53	6%	(4%)
All Providers	60	5%	(1%)

Weighted by Handicapped Weight.

Appendix Table C5.8

Distribution of Federal (EHA-B) and Total Expenditures for Special Education by Type of Resource

Resource Type:	Percent of Federal (EHA-B) Expenditures for Instructional Services			Percent of Total Expenditures for Instructional Services		
	mean	(s.e.)	n	mean	(s.e.)	n
Aide	19%	(4%)	56	8%	(1%)	53
Teacher	39%	(5%)	56	57%	(2%)	53
Other Professionals/ Practitioners, and Personnel*	34%	(5%)	56	22%	(3%)	53
Non-Personnel	8%	(2%)	56	14%	(1%)	53

Weighted by Handicapped Weight.

* Includes, for example, therapists, social workers, speech/language pathologists, school psychologists, clinical psychologists, counselors, attendants, and bus drivers.

Appendix Table C5.9

Federal (EHA-B) Percentage of Expenditures for Special Education Instructional Services by Type of Resource

Program/ Service:	Resource Type			
	Teachers	Aides	Other Professionals/ Practitioners	Non-Personnel
Instructional Programs				
mean	5%	14%	2%	9%
(standard error)	(1%)	(3%)	(1%)	(2%)
sample size	60	60	60	60
Supplemental Services				
mean	3%	6%	8%	6%
(standard error)	(1%)	(4%)	(1%)	(2%)
sample size	60	60	60	60
Total				
mean	4%	13%	5%	7%
(standard error)	(1%)	(3%)	(1%)	(1%)
sample size	60	60	60	60

Weighted by Handicapped Weight.

Appendix Table C5.10

Average Federal (EHA-B) Percentage of Special Education Instructional Program Expenditures by District Size and Metropolitan Status

District Characteristic:	Sample Size	Federal (EHA-B) Percent of Expenditures	
		mean	(s.e.)
District Size			
Small	22	7%	(2%)
Medium	16	4%	(1%)
Large	22	4%	(<1%)
Metropolitan Status			
Rural	13	5%	(2%)
Suburban	24	6%	(1%)
Center City	23	8%	(3%)
Across All Districts	60	6%	(1%)

Weighted by District Weight.

Appendix Table C5.11

Average Federal (EHA-B) Percentage of Special Education Instructional Program and Supplementary Service Expenditures by District Size and Metropolitan Status

District Characteristic:	Sample Size	Federal (94-142) Percent of Expenditures	
		mean	(s.e.)
District Size			
Small	22	6%	(2%)
Medium	16	3%	(1%)
Large	22	5%	(1%)
Metropolitan Status			
Rural	13	5%	(2%)
Suburban	23	5%	(1%)
Center City	24	7%	(1%)
Across All Districts	60	5%	(1%)

Weighted by District Weight.

Appendix Table C5.12

Distribution of Federal (EHA-B) Special Education Expenditures for Instructional Services and Support Services by District Size and Metropolitan Status

District Characteristics:	Percent of Federal Expenditures for Instructional Programs and Supplemental Services			Percent of Federal Expenditures for Support Services		
	mean	(s.e.)	n	mean	(s.e.)	n
Size of Enrollment						
Small	75%	(9%)	20	25%	(9%)	20
Medium	81%	(8%)	15	19%	(8%)	15
Large	84%	(4%)	22	16%	(4%)	22
Metropolitan Status						
Rural	80%	(10%)	11	20%	(10%)	11
Suburb	72%	(8%)	23	28%	(8%)	23
Center City	89%	(2%)	23	11%	(2%)	23
Across All Districts	77%	(7%)	57	23%	(7%)	57

Weighted by District Weight.

Appendix Table C5.13

Distribution of Federal (EHA-B) Expenditures for Types of Special Education Programs and Services by Selected District Characteristics

District Characteristics:	Average Percent of Federal Expenditures			
	Resource Programs	Self-Contained	Related Services	Other Instruction and Services*
Size of Enrollment				
Small				
mean	45%	27%	20%	7%
(s.e.)	(8%)	(5%)	(5%)	(4%)
sample size	16	16	16	16
Medium				
mean	11%	47%	14%	29%
(s.e.)	(4%)	(15%)	(6%)	(8%)
sample size	15	15	15	15
Large				
mean	9%	38%	26%	26%
(s.e.)	(4%)	(6%)	(3%)	(3%)
sample size	22	22	22	22
Metropolitan Status				
Rural				
mean	41%	42%	12%	6%
(s.e.)	(17%)	(20%)	(7%)	(4%)
sample size	9	9	9	9
Suburb				
mean	33%	23%	24%	21%
(s.e.)	(8%)	(6%)	(5%)	(7%)
sample size	21	21	21	21
Center City				
mean	5%	53%	22%	20%
(s.e.)	(3%)	(12%)	(3%)	(8%)
sample size	23	23	23	23
Across All Districts				
mean	33%	34%	19%	15%
(s.e.)	(8%)	(5%)	(4%)	(5%)
sample size	53	53	53	53

Weighted by District Weight.

* Includes special vocational services, transportation, assessment, residential, home/hospital programs and preschool programs.

Appendix Table C5.14

Distribution of Federal (EHA-B) Special Education Expenditures for Age Groups Served in Instructional Programs by Selected Characteristics of Districts

District Characteristics:	Average Percent of Federal Expenditures		
	Preschool 0-5	Self-Contained and Resource Programs 5-21	Other Programs*
Size of Enrollment			
Small			
mean	8%	91%	2%
(s.e.)	(6%)	(6%)	(1%)
sample size	11	11	11
Medium			
mean	11%	74%	15%
(s.e.)	(3%)	(10%)	(10%)
sample size	12	12	12
Large			
mean	8%	82%	10%
(s.e.)	(4%)	(9%)	(6%)
sample size	19	19	19
Metropolitan Status			
Rural			
mean	4%	96%	<1%
(s.e.)	(4%)	(4%)	(na)
sample size	7	7	7
Suburb			
mean	15%	69%	15%
(s.e.)	(6%)	(9%)	(8%)
sample size	15	15	15
Center City			
mean	6%	89%	5%
(s.e.)	(4%)	(6%)	(3%)
sample size	20	20	20
Across All Districts			
mean	9%	84%	7%
(s.e.)	(4%)	(6%)	(4%)
sample size	42	42	42

Weighted by District Weight.

* Includes residential programs, home/hospital programs and special vocational services.

Appendix Table C5.15

Distribution of Federal (EHA-B) Expenditures
for Types of Special Education Resources
by Selected District Characteristics

District Characteristics:	Percentage of Federal Expenditures			
	Teachers	Aides	Other Practitioners/ Professionals	Non-Personnel
District Size				
Small				
mean	49%	8%	29%	14%
(s.e.)	(11%)	(3%)	(6%)	(6%)
sample size	19	19	19	19
Medium				
mean	42%	25%	25%	8%
(s.e.)	(8%)	(10%)	(11%)	(6%)
sample size	15	15	15	15
Large				
mean	36%	32%	31%	1%
(s.e.)	(7%)	(5%)	(4%)	(1%)
sample size	22	22	22	22
Metropolitan Status				
Rural				
mean	47%	17%	18%	17%
(s.e.)	(11%)	(9%)	(5%)	(9%)
sample size	11	11	11	11
Suburban				
mean	44%	9%	39%	8%
(s.e.)	(12%)	(4%)	(11%)	(3%)
sample size	22	22	22	22
Center City				
mean	52%	18%	29%	1%
(s.e.)	(8%)	(5%)	(5%)	(<1%)
sample size	23	23	23	23
Across All Districts				
mean	46%	14%	29%	11%
(s.e.)	(8%)	(5%)	(6%)	(4%)
sample size	56	56	56	56

Weighted by District Weight.

APPENDIX D

Definitions of Federal Handicapping Conditions

HANDICAPPING CONDITIONS

HANDICAPPED students are reported in one of these 11 categories:

D DEAF means a hearing impairment which is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, which adversely affects educational performance.

DB DEAF/BLIND means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that they cannot be accommodated in special educational programs solely for deaf or blind children.

HH HARD-OF-HEARING means a hearing impairment, whether permanent or fluctuating, which adversely affects a child's educational performance, but which is not included under the definition of "deaf" in this section.

MR MENTALLY RETARDED means significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period, which adversely affects a child's educational performance.

MH MULTIHANDICAPPED means concomitant impairments (such as mentally retarded/blind, mentally retarded/orthopedically impaired, etc.), the combination of which causes such severe educational problems that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf/blind children.

OI ORTHOPEDICALLY IMPAIRED means a severe orthopedic impairment which adversely affects a child's educational performance. The term includes impairments caused by congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by diseases (e.g., poliomyelitis, bone tuberculosis, etc.), and impairments from other causes (e.g., cerebral palsy, amputations, fractures or burns which cause contractures).

HI OTHER HEALTH IMPAIRED means limited strength, vitality, or alertness, due to chronic or acute health problems such as a heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes, adversely affecting a child's educational performance. The term includes children who are autistic.

ED SERIOUSLY EMOTIONALLY DISTURBED is defined as follows:

(a) The term means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree, which adversely affects educational performance.

- o An inability to learn which cannot be explained by intellectual, sensory, or health factors
- o An inability to build or maintain satisfactory interpersonal relationships with peers and teachers
- o Inappropriate types of behavior or feelings under normal circumstances
- o A general pervasive mood of unhappiness or depression
- o A tendency to develop physical symptoms or fears associated with personal or school problems

(b) The terms does NOT include children who are socially maladjusted, unless it is determined that they are seriously emotionally disturbed.

LD SPECIFIC LEARNING DISABILITY means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does NOT include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, or of environmental, cultural, or economic disadvantage.

SI SPEECH IMPAIRED means a communication disorder, such as stuttering, impaired articulation, a language impairment, or a voice impairment, which adversely affects a child's educational performance.

VH VISUALLY HANDICAPPED means a visual impairment which, even with correction, adversely affects a child's educational performance. The term includes both partially seeing and blind children.